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OLEOMARGARINE

HEARINGS

BEFORE THE

COMMITTEE ON AGRICULTURE

HOUSE OF REPRESENTATIVES

ON

**BILLS PROPOSING TO AMEND THE
OLEOMARGARINE LAWS**

DECEMBER 5 AND 17, 1912



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OLEOMARGARINE.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., December 5, 1912.

The committee met at 10.30 o'clock a. m., Hon. John Lamb (chairman) presiding.

The CHAIRMAN. The committee will be in order. Gentlemen of the committee, we will hear from Dr. Stratton this morning. Mr. Haugen, have you any questions you wish to ask?

Mr. HAUGEN. I have no questions to ask, except I understand the representatives of the dairy people have been conferring with the Bureau of Standards with a view of ascertaining whether a standard could be fixed for colors, and we have invited Prof. Stratton this morning to explain to the committee how it can be done, and I would suggest that the professor go on in his own way and explain to the committee how this can be worked out.

STATEMENT OF S. W. STRATTON, DIRECTOR OF THE BUREAU OF STANDARDS.

Dr. STRATTON. For some time there has been a great demand for some practical method of reproducing color. This is needed in a great many industries—in textiles and paper and porcelain—in the reproduction of porcelain and pigments. There are a great many cases in the industries where it is very desirable to reproduce color—to fix the standard of color. Unfortunately the pigments and materials that are available change in time. These pigments fade, as it were. That has been the great difficulty. The only fixed colors we have in nature, colors that can be reproduced, are the primary colors of sunlight, or the primary colors, as we call them in the laboratory. Those serve fairly well as a primary standard, as a primary fixing of color, but in practice there are all sorts of shades and varieties—mixtures of color—so that the problem of a secondary standard, as is called, is not nearly so easy.

We usually speak of the primary standard as the thing which is kept in the laboratory to which all of the other measuring instruments or working standards are referred, the working standards in many cases being a much simpler and entirely different apparatus or standard. This question, as I say, has come up in a number of ways and during the last season a number of gentlemen interested in the fixing of standards of color of butter have visited the laboratory and asked precisely the same questions that the makers of pottery or textiles or paper have asked, and it is a question in which we have been very greatly interested. Now I wish it understood that the

bureau is entirely without the functions of a bureau of experiments and opinion as to the advisability of this method. As I understand it, you only wish from me a statement as to the practicability of measuring colors—whether it is advisable or not, I do not know. That is a question which belongs to the Agricultural Department and not to the Bureau of Standards. It is very desirable that the bureau do the best it can in the way of maintaining the standards, not only for the Agricultural Department, but for the public, for all the industrial interests of the country, and it was for that reason we have been working on this problem.

There are, in general, three methods of attacking this problem. One of the most common in use depends upon the principle of having a lot of standards, prints and shades, fixed in glass. We have a wide range of these prints and shades of which you can make combinations and with a definite combination you can reproduce a definite color. The difficulty here is that the maker of those glasses is dependent upon his eye in reproducing those things year after year. Those glasses are only secondary standards and are not very reliable unless they can be referred to the spectrum colors in the end, and our problem is the referring of those glasses to the spectrum colors. The other proposition, which has been worked out in pretty considerable detail by a man called Ives, depends upon the principle that you can take three of the principal colors and by combining those in certain proportions reproduce almost any other color, and if you take an one color and find out those three proportions you can reproduce that color by composing it of the same proportions of the same three colors. The other is one the principle of which has been known but the principal application of which has been worked out at the bureau. That depends upon taking the one primary color, which is prominent, and mixing with it a certain proportion of white and determining a color in terms of a prominent hue, as we say, and a certain percentage of white. Those are the three methods, and by any one of them the standards of color can be maintained with a fair degree of accuracy if you choose to adopt that method of measuring color—I mean, if you choose to introduce the measure of color into this question, whatever it is.

Here is a sample card, which some one left at the bureau, which you might take to illustrate the question. The three colors upon this card are made up by the lithographer. I think some representative of the Dairymen's Association, Mr. Whitacre, probably, left this at the bureau, and they asked the question how we could reproduce those colors. You could not leave that to the lithographer. The lithographer would take this and make another like it; that would go until the next year, when he would make another like this, so the errors would be cumulative. He could match that color with the spectrum pretty accurately, but suppose he makes a little error; the next year he might make the same, and the next year the same, and so on, whereas while we may not be able to refer this to the primary standard with the same degree of accuracy, yet it is not a cumulative error if you have the spectrum color as a standard. You might have a variation of 2 per cent one year and 3 per cent the other, but in the end you have been referring to a standard which is constant. I am referring now to the spectrum color, so that the problem that has been brought up to us by the dairy people is, if the inspector should

furnished with cards, whether or not those cards could be kept fairly constant from time to time, and that is the only part of this question in which we are interested, and my answer would be that these cards can be kept fairly constant by any of the three methods suggested. I would not say at present just which of the three is the best method of comparing those with the primary standard, but which can be done within an accuracy of perhaps 2 to 5 per cent, but I believe that the word "percentage" is not altogether accurate.

Mr. HAUGEN. Will you please explain how this card was prepared and by what process?

Dr. STRATTON. We will suppose that you decided to have these standards used by inspectors, then before those were issued to the inspectors they would have to be compared with the primary standard by one of these methods of which I spoke, and those which are not sufficiently accurate would have to be rejected; that is, every inspector's card would be passed upon by some one that was competent to measure and compare it with the primary standard. In no other way could you maintain this standard. The photographer can not do it. He goes entirely by the eye. This card before you is a lithographed card.

Mr. HAUGEN. These inspectors and manufacturers could be provided with these cards without any great expense, could they not?

Dr. STRATTON. Yes, sir.

Mr. HAUGEN. They could be provided by the bureau without any great expense, could they not?

Dr. STRATTON. Yes; but it would not do to leave this to the lithographer, because he has no definite reproducing color except by his eye. If you should take him this card and tell him to reproduce it he would do it pretty fairly well, but the next year you might take him one in which an error existed, and he would reproduce that, and the error would become a cumulative one. You can never know that in a question of standards. It must always be referable, no matter what kind of measurement it is, to some standard which is fixed and with which all the working standards can be compared.

The CHAIRMAN. Are there any further questions, gentlemen?

Mr. HAWLEY. When those colors are put on a card like this, will they always maintain that same shade or will they grow lighter?

Dr. STRATTON. No, sir; many pigments fade. The yellows are fairly constant. That is one difficulty of trying to match colors from year to year, because they are not permanent; there are very few colors that do not fade from time to time. Some reds are constant; some blues and some yellows. All colors could be divided probably into three classes. There are very few colors which are really permanent, very few indeed. That is another reason for having these always referred to. It would be entirely out of the question to use such standards unless they are referred to a standard which does not change.

Mr. HAWLEY. It would be necessary, from time to time, to renew the inspectors' cards, send them out and renew the cards, would it not?

Dr. STRATTON. Yes, sir; I could not answer off hand what that time would be until these colors had been very carefully examined. I do not know what colors will be used here. But the chances are

that such colors, not too much exposed to the light, would be fairly accurate for two to three years.

Mr. LEVER. Would it be a safe proposition to convict a man of a criminal offense on the accuracy of that care?

Dr. STRATTON. Yes; if you interpret the measurements in the same way you interpret all measurements. There is not a single measurement made that is absolutely accurate. Say you convict a man for giving short weights. The question arises, What are false weights? If you have not established the tolerance; that is, the degree of variation—we always speak of that as tolerance—why it would be difficult. You have tolerance in all questions of measurement and it must be taken into account; it does not matter whether you are measuring the color, or yards, or pounds, it is a question as to what that tolerance is.

Mr. HAWLEY. Do they have a problem like this in any other department of the Government where the variations of color would cause a man to commit an offense?

Dr. STRATTON. No, sir; I know of no case like that. It usually comes up in an entirely different way. We will say the Navy Department prescribed a certain color of cloth, or the War Department, or in buying textiles or paper, the Government Printer wishes to fix his colors of paper. It is a question of perpetuating a certain color; or, we will say, reproducing a certain color.

Mr. HAWLEY. But a variation from that would not be a criminal offense?

Dr. STRATTON. No, sir; although it would be a matter for rejection of the purchase and there might be a suit in regard to that. I do not wish to convey the impression at all that this is what we call a precision measurement. It is a fair measurement. It is better than no measurement at all, if you wish to reproduce color; if you decide to allow this question to depend upon the measurement of color then it can be done with sufficient accuracy, but it is not a measurement to be compared with a measurement of weights, or lengths, or several others.

Mr. LEVER. I did not get that last statement. Do you say it is no as accurate as a measurement of weights or distance?

Dr. STRATTON. Not at all.

Mr. TAGGART. Professor, in taking this card now, for the purpose of ascertaining whether or not a certain article corresponds to one of these shades, or has more white in it or less white in it than one of these shades, the final decision rests with the eye of the examinee, does it not?

Dr. STRATTON. Yes, sir; and that is a pretty accurate measuring instrument.

Mr. TAGGART. But having before his eyes a card that was made presumably having 55 per cent of white, and laying it alongside and bringing it near to the article he desired to compare with it, then he would form a judgment?

Dr. STRATTON. Yes; and a rather accurate measurement. You can match two pieces of paper or two pieces of cloth by the eye very accurately. That is an easy thing to do, but that is quite a different proposition from carrying in the eye a standard or fixing a standard. You no doubt have in mind this question which might come up. It is a very easy thing to compare two colors with each other. Y

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can take a piece of cloth and match it with another, as people do when they are going shopping. If that is an easy matter, why not file away a sample and keep that as a standard and always compare by the eye? That would be a very good thing to do if pigments were parmanent, if they did not fade with time.

Mr. TAGGART. I have in mind another matter, if you will pardon me, to inquire about. Assuming a man takes this card and having examined an article he determines by comparison that it does not contain as many per cent of white as this does——

Dr. STRATTON. Yes.

Mr. TAGGART. Then when he comes into court if he should prosecute one for making an article not containing that percentage of white, he would say that he looked upon the article the man had, then transferred his eye to the card that he had and that in his judgment the article the man had was not white enough.

Dr. STRATTON. The case is not quite as you have stated it. He would have these three tints. If you number the central tint as one and you prescribe that the two side ones are those you have as the limit, then what he would say would be: "This color falls without the limit." He is not compelled to say that it has a certain percentage of white. Those three colors there are fixed. I understand that is the standard proposed to be used.

Mr. TAGGART. So he would be at liberty to say that it was without either the prescribed limits on this card?

Dr. STRATTON. Yes, sir.

Mr. HEFLIN. Then it would be a case for the jury, if the case were tried before a jury, as to whether or not he had complied with the law?

Dr. STRATTON. Yes, sir.

Mr. HEFLIN. Suppose you had a lot of color-blind fellows on the jury; you would have to exhibit your cards to the jury; then suppose you had one expert witness who swore the defendant did come within the limit prescribed by the law and the others swore that he did not, you would then have some difficulty in convicting him, would you not?

Dr. STRATTON. I imagine that if it was a question depending on color, it would hardly be proper to put a color-blind man on the jury.

Mr. HEFLIN. Then you would have to test the eyesight of every man on the jury in order to get a jury that was not color-blind, would you not?

Dr. STRATTON. I should think so, but it ought not to be a difficult matter to do so.

Mr. TAGGART. Let me ask the gentleman from Alabama: I presume you have in mind that they would have a sample of material and the cards before the jury, and then depend upon the jury verifying the judgment of the witness?

Mr. HEFLIN. They might have a sample and might not.

Dr. STRATTON. We might put a color-blind inspector on. That is a still worse proposition.

Mr. LEVER. That is entirely possible.

Dr. STRATTON. Yes, possible; but it is a matter of business administration in our department. That would be the very first precaution we would take, to see that a man was not color-blind. And I imagine that is the case in the Agricultural Department. We might

be liable to run into a locomotive engineer who was color-blind, but we do not because they are examined before they are put there.

Mr. HEFLIN. It is estimated, I believe, that about 60 per cent of the people are color-blind.

Dr. STRATTON. I very much doubt that. Then again many people who are color-blind can match shades and colors. It is a question of matching with the inspectors. Men who might be color-blind in a strict technical sense might match those things. They often are able to match very accurately.

Mr. TAGGART. Let me ask for information. Is it contemplated that a standard would be established to allow a margin to be made of the shades of color of the least shade of white on here, to the yellowest on here?

Mr. HAUGEN. No; the middle one.

Mr. TAGGART. But he would be at liberty to exceed this golden-butter color here?

Mr. HAUGEN. As the professor says, you can not get within two or three degrees, but it would be easy for any man, even if color blind to distinguish between those two cards.

Mr. HAWLEY. They are not supposed to go beyond the middle one.

Mr. TAGGART. A man could tell whether it was yellower than this or lighter than that, but what I want to ask is this: Is the manufacturer of oleomargarine allowed to make his product—

Mr. HAWLEY (interposing). No; nothing yellower than No. 1.

Mr. TAGGART. He may make it as white as he chooses, but no yellower than the middle color?

Mr. HAWLEY. Yes. Is it possible, by mechanical means, if all the cards should be destroyed, to reproduce a color?

Dr. STRATTON. That is just what I am talking about. That is one part of it and no more.

Mr. HAWLEY. You could reproduce that color if every card was destroyed, could you?

Dr. STRATTON. Yes; that is exactly it.

Mr. MAGUIRE. If an expert would grow more accurate in determining those colors, from time to time—that is, through experience so he would have the colors more definitely before him, he could make an examination more readily and easily, could he not?

Dr. STRATTON. Yes, sir; people become very expert in anything. We find that in connection with photometry. Photometry is a branch of our work which has to deal with candlepower, and from long practice in measuring lights a person's judgment grows more accurate the more he does of that sort of work.

Mr. MAGUIRE. A man might not be accurate in determining color still in the course of a year or two he might become quite accurate.

Dr. STRATTON. Yes; an ordinary individual would be able to compare such a color with a colored object very well, but he would become more expert as he has experience.

Mr. MAGUIRE. You find that is true in the lines of manufacturing industries, do you not?

Dr. STRATTON. Yes, sir; that is the case.

The CHAIRMAN. Mr. A. B. Hayes, who represents the Cattle Crusher Association, would like to ask a few questions.

Mr. HAYES. Do you say that an expert might detect the difference between Nos. 2 and 3 on this card quite readily?

but Dr. STRATTON. I think he need not be an expert to do that.

Mr. HAYES. An ordinary person could do that?

it is Dr. STRATTON. Yes, sir.

people 55 per cent, and a color which might run over two or three shades
on of or degrees beyond that?

in Dr. STRATTON. Shade or degree does not mean anything.

2 able Mr. HAYES. Should he be able to detect the difference between the
middle card and a card which was very slightly deeper in color and
d tha more nearly approaching the 40 per cent cast of color?

of th Dr. STRATTON. The minute you say it is a very slightly deeper
lowes color you have detected it.

Mr. HAYES. But I am supposing one man should say it is a little
deeper color. Would that appeal to the ordinary man in the mass?

golden Dr. STRATTON. Yes, sir; as a rule.

Mr. HAYES. It is of record, is it not, that quite a large percentage
of men are color-blind?

two e Dr. STRATTON. I suppose so.

r blind Mr. HAYES. And it is also of record that a very large number of
men, exceeding that percentage, are without ability to distinguish
ille one accurately between the colors and tints. Is not that of record in the
can thi works?

e man Dr. STRATTON. You probably know more about that than I do.

o. 1. Mr. HAYES. Is not that true?

but n Dr. STRATTON. I think you are rather overestimating it, but my
experience is not very large as to that.

all the Mr. HAYES. The standard of weights and measures does not at all
depend upon the individual characteristic eyesight of man, does it?

that is Dr. STRATTON. No.

card n Mr. HAYES. And these colorimeter tests—

Dr. STRATTON. Just one minute. Mr. Priest, what would be your
answer to that?

in det Mr. I. G. PRIEST. The statistics show that not more than 10 per
perence cent of male human beings are color blind, and about 1 per cent, if I
ould mai remember right, of females.

anything Mr. HAYES. I think that is correct. Can you give the statistics of
try is the proportion of men and women who are what we might call tint
, and fra blind?

rows m Mr. PRIEST. I can not. It would be much less than that.

ning color Mr. HAYES. Just give us some little information about this tint
e accurate blindness.

ble to ne Mr. PRIEST. Inability to distinguish between shades of color.

t he we Dr. STRATTON. Do you mean from one shade or tint of green or
yellow to another?

nufacture Mr. HAYES. By comparison.

the C. Dr. STRATTON. Do you mean shades of yellow from each other?

he differ Mr. HAYES. Any one, by comparison of what is said to be the same
shade?

Dr. STRATTON. You want to keep those two questions quite distinct.
A man may be—in fact, there is a large number of people who are
not competent to detect between shades of blue with shades of yellow,
but it would be quite a different matter from detecting between shades
of yellow.

Mr. HAYES. Yet there is a variance in different individuals, is there not?

Dr. STRATTON. I should say so; yes, sir.

Mr. HAYES. That variance depends to some extent, also, on the pathological condition of the man who is making the examination. does it not?

Dr. STRATTON. Whatever variance there is there is not nearly so great as the variance in the mechanical difficulty of doing it. You can waive all those objections and say that the greatest objection and the greatest trouble is inaccuracy of comparing such with the standard in the laboratory. Those which you are trying to bring out are insignificant compared with them.

Mr. HAYES. In that card system those cards would have to be produced in very large numbers and they fade, do they not?

Dr. STRATTON. That would depend on the number of inspectors. They will fade, but they will last a reasonable and proper length of time. They are not sufficiently permanent to serve as a primary standard, but they are sufficiently permanent to serve as a comparative standard.

Mr. HAWLEY. They could be supplied to inspectors every three months?

Dr. STRATTON. I would not say that would be necessary. Would you not say that a card of that kind would last two years, Mr. Priest?

Mr. PRIEST. I should say so. Those people in Baltimore succeeded in producing very permanent colors. We have those in the department which have been exposed to very direct sunlight for a considerable length of time and have shown but very little change, and some have shown no perceptible change.

Mr. HAUGEN. What would be the expense of those cards per hundred? What is the estimate?

Dr. STRATTON. Eighty dollars per thousand for the first thousand.

Mr. HAYES. The various articles used in preparing the paint or pigment will vary in their susceptibility to the influence of light, will they not?

Dr. STRATTON. Not if you once decide on what to use there; they will not vary.

Mr. HAYES. That is, that same pigment would last about the same length of time on various cards, would it?

Dr. STRATTON. That has been the experience of printers and others.

Mr. HAYES. Have you ever given any attention or thought to how the manufacturer of oleomargarine can compare his various turnings or batches of product with this color card?

Dr. STRATTON. No, sir.

Mr. HAYES. You have not given any thought to that?

Dr. STRATTON. No, sir.

Mr. HAYES. You do not know anything at all about any difficulty which might arise in that direction, then?

Dr. STRATTON. No, sir; only, as I said before, our function, if you decide to use this method, would be to do everything in our power to maintain these standard colors and certify them to your inspectors. That is as far as our functions go.

Mr. HAYES. In making your primary determination for these cards, Dr. Stratton, what basis do you use—chemical?

Dr. STRATTON. No, sir; physical. The colors are referred to the primary colors of the spectrum.

Mr. PLUMLEY. As I understand it, you have experts in your bureau who, if a sample of oleomargarine was furnished them, for instance, they could say with accuracy it did or did not fall within the prohibition of that 55 per cent?

Dr. STRATTON. Well, I would not say with accuracy, but within a reasonable degree of accuracy, and we would not do it in the same way these inspectors do. You should keep those two things separate. If you were to send to us a sample of oleomargarine, we would examine it the same way we examine these cards—refer them to the primary standard; we would not go through the process of the cards. As I understand, the question is whether you can have these secondary standards to put in the hands of the inspectors who go about and inspect.

Mr. PLUMLEY. On a question requiring accuracy before a jury, could you from your bureau furnish a practically accurate statement?

Dr. STRATTON. Yes, sir; but it would always be expressed with limits. Every measurement must be expressed with limits. The word "accuracy" is very misleading there.

Mr. PLUMLEY. I understand you to say that would be a variance of perhaps 2 per cent?

Dr. STRATTON. Yes; 2 per cent, or perhaps a little more. It depends on the interpretation of the word.

Mr. PLUMLEY. Not exceeding 5 per cent?

Dr. STRATTON. I would put the limit at 5 per cent.

Mr. PLUMLEY. An ordinary tolerance of 2 per cent?

Dr. STRATTON. Yes, sir; you speak of an average large number of measurements, the variance would not be more than 2 per cent, but any one measurement might be 5 per cent off.

Mr. PRIEST. I think that would be about it.

Mr. TALCOTT. When you speak of accuracy, do you speak of it in its scientific sense?

Dr. STRATTON. No; that is another mistake to assume there is such a thing as scientific and practical accuracy. In every kind of measurement a practical accuracy goes with it, and it is usually expressed in percentage. In measurements of length we say that a measurement that is made 1 part to 1,000 is not very accurate; 1 part in 100,000 is fairly accurate; and 1 part in 1,000,000 is a precise measurement.

Mr. TALCOTT. You are speaking now of practical application, are you not?

Dr. STRATTON. Yes, sir; it depends upon the purpose for which it is used. I do not wish to convey the impression at all that this sort of measurement is in the same class with weights and measures, and so on, but we are now in a position to measure color fairly well. It is not yet a precise measurement, but as time goes on it will become more and more precise.

Mr. TALCOTT. And by referring this sheet to the primary colors you can always reproduce one accurately?

Dr. STRATTON. Yes, sir; with a reasonable degree of accuracy.

Mr. CANDLER. You stated that you had not made any examination of colors in reference to oleomargarine and as to what difficulties

might arise in relation to such products. Have you made any investigation as to butter itself?

Dr. STRATTON. Unfortunately the expert who made the measurements left the employ of the Government a few days ago, but samples of butter and oleomargarine were examined with a view to measuring them up in the same way we measure those cards. We could measure the butter or oleomargarine with the same degree of accuracy we can measure those cards. However, it is impracticable to put that instrument and that method into the hands of these inspectors. That would be out of the question. It is a delicate physical operation.

Mr. CANDLER. It is a fact, is it not, that butter itself differs materially in color?

Dr. STRATTON. Yes, sir.

Mr. CANDLER. And there is quite a range of shades in butter itself, is there not?

Dr. STRATTON. I know that, not from our experiments here, but from my experience in making it.

Mr. CANDLER. Yes; I know it from experience in using it.

Mr. LEVER. Your proposition is, if you have 12 men on the jury who see alike in color, you could reach a fairly accurate decision as to difference in color?

Dr. STRATTON. Yes; I think so.

Mr. LEVER. If you picked up 12 men indiscriminately, as we do in the jury box, some seeing one way and some seeing another way, do you think we could reach any accurate decision as to comparison of colors?

Dr. STRATTON. Let us take the pure-food law. Suppose a man violated the pure-food law. He has adulterated something. Do you require all the jurymen to be chemists and make the analysis on which that is determined?

Mr. LEVER. No; not that I know of.

Dr. STRATTON. Well, would you require them all to be physicists here?

Mr. HAWLEY. Would you expect the jury to take the statement or testimony of experts in the matter?

Dr. STRATTON. I should think so. Is not that what they do in other cases? You gentlemen are lawyers and I am not.

Mr. LEE. Suppose the experts differ?

Dr. STRATTON. They undoubtedly do. I do not know anything which does differ as expert testimony.

Mr. LEVER. After all, would it not be a question in the minds of the jury, and would it not depend on the decision of the individual juror in the comparison of these colors, admitting that the experts differ?

Dr. STRATTON. That would be true if you take the butter and these samples before the jury and let them decide. That is one question; but if you take these to proper experts and base the jury's decision upon their testimony, that is another thing.

Mr. LEVER. Let us assume a case: A man is prosecuted for selling oleomargarine beyond the 55 per cent limit. Perhaps the sample you present to the jury contains 60 per cent, in the opinion of your experts. The defendant puts upon the stand a man who says that it does not contain 60 per cent, but contains 54 per cent; then, after all,

does it not become a question for the jury to decide for themselves from their own vision as to the degree of color in this sample of oleo-margarine which you present to the jury?

Dr. STRATTON. I do not think so. I do not think the question would come up in that way. That is a little out of my line, but as I would not trust to the jury the determining of the composition of a substance, neither would I trust to them the determining of the color. Why should you do so in the one case more than in the other? Jurymen are not chemists; why should they be physicists?

Mr. LEVER. After all, does it not come down to the point that the jury must try these things? A man is tried by his peers, you know, 12 of them, in this country.

Dr. STRATTON. Suppose it is a question of the composition of the article, the jury can not be chemists. They can not analyze it. The Agricultural Department probably analyzes that, do they not, in the case of pure food?

Mr. LEVER. I think so.

Dr. STRATTON. Could they not handle this in the same way?

Mr. LEVER. Does not the proposition differ a little? While the jury may not be chemists, the jury can at least see, and they are going to make up their own minds from what they see, if the experts differ on the proposition.

Dr. STRATTON. I think you make a mistake in assuming that it is purely a question of seeing. One is a question of physics and one of chemistry.

Mr. LEVER. But you have admitted already that the experts will differ; that there is not any testimony so contrary or conflicting as expert testimony; that being the case, does it not come down, after all, to the vision of the jury who make the comparison?

Dr. STRATTON. I mean by that that in my experience the opinion of an expert is very liable to be biased by the side which pays him.

Mr. LEVER. That only emphasizes my proposition.

Mr. HAWLEY. May I ask you a question?

Mr. LEVER. Yes; but I am not on the stand.

Mr. HAWLEY. Might not the difference of opinion between the experts be such a very small amount as to practically present no difficulty in the solution of the problem? Might the variation of their judgment be in such a small degree as to make no practical difference?

Mr. LEVER. That might be, but assuming, Doctor, that the experts testify according to the weight of money, in that event they might differ very materially, might they not?

Dr. STRATTON. Is not the object of putting this in the hands of the department to avoid just that very thing? To have experts that you do know are unbiased and are not under the influence of either side?

Mr. HAUGEN. I should like to have the professor answer the question you propounded to Mr. Lever.

The CHAIRMAN. The latitude of this investigation is getting very broad.

Mr. HAUGEN. To what extent do the experts agree here as to the color in percentage?

Dr. STRATTON. I think I answered that question awhile ago. In the long run, the disagreement probably would be 2 to 2½ per cent, but an individual measurement might be as much as 5 per cent.

However, I do not want to mislead you by that term "percentage"; it does not mean just the same as percentage in other things.

Mr. HAWLEY. In the case where the Government buys a grade of cloth of a certain color, have you ever had the question of the color as to whether the cloth offered by the manufacturer would be up to the shade of color the Government desired? Has that question ever been referred to you, or any question of that kind?

Dr. STRATTON. Several times. As to the possibility of it, or whether or not rejection of the contract depended on it, I could not say.

Mr. HAWLEY. Have you ever gone into court on behalf of the Government?

Dr. STRATTON. No, sir; not in regard to color.

Mr. PLUMLEY. You said that the percentage that you are now speaking of with regard to colors is of a different nature, somewhat, than the ordinary use of the word "percentage." I wish you would, for my information, tell me what you have in mind in that statement.

Dr. STRATTON. If we measure it up by the method which is involved here, by taking a primary color and mixing it with white and expressing the percentage of white, that is one thing. If we take the other method, where there are combinations of three primary colors, then we express the percentage of the three colors which go into it, and there the percentage of measure being the percentage of measure of three elements.

Mr. PLUMLEY. There is a little difference in the way you approach the subject as to accuracy?

Dr. STRATTON. No; I would say if we measure this length, and say we measured that correctly to within 1 per cent, you know exactly what I mean; but if I take this color and say we measured that to within 1 per cent, it does not mean quite the same thing. It means that we have determined the percentage of white that goes to make up that color within 1 or 2 per cent.

Mr. HAYES. If the standard is to be set by the Bureau of Standards, it becomes, then, a question of infallibility?

Dr. STRATTON. What do you mean by "set"? Do you mean the Bureau of Standards to set the standard to be used by the butter makers?

Mr. HAYES. Yes, sir.

Dr. STRATTON. That is not a thing for us to do; but suppose you and all the parties in connection with the Agricultural Department decide that you want a color standard, it is up to us to extend that standard for you.

Mr. HAYES. Then that depends on the infallibility of the experts employed by the Government in your office, does it not?

Dr. STRATTON. Yes, sir.

Mr. HAYES. If 55 per cent is to be the limit of color in oleomargarine, where will the manufacturers of oleomargarine employ their physicists to determine for them the exact color of their different shades?

Dr. STRATTON. Is there any difference—should they not take the same standard?

Mr. HAYES. You spoke of physicists being on the jury to determine the question. Is it not just as necessary, in order to preserve a man

from going to the penitentiary who is engaged in the manufacture of this article, to have physicists in his employ to determine the color primarily, if you are going to determine the question before a jury by an expert?

Dr. STRATTON. If you assume that every time a butter manufacturer wants to make a measurement that he has got to have the authority that you have in court, then your question is all right.

Mr. HAYES. Does it not resolve itself into that?

Dr. STRATTON. No, sir; not at all; any more than if I wanted to measure the length of a pine board that I would have to have a physicist come and measure that for me.

Mr. HAYES. If upon the length of that pine board depended whether you were going to the penitentiary or not, you would want to employ the very best talent, would you not?

Dr. STRATTON. I would not say "the very best," but one sufficiently good.

Mr. HAYES. Then you do not value your liberty, probably, as highly as some of us do.

Dr. STRATTON. In other words, I do not think I would employ a man who makes precise measurements of length to measure a pine board. I think you probably understand that about as well as I do.

Mr. HAYES. I think possibly I do.

Mr. HEFLIN. Now, in that connection, Doctor, the jury is the body that must be convinced beyond a reasonable doubt as to the guilt of the person arraigned. They would have to look at these various colors and determine for themselves. Would it not require in every community where oleomargarine was sold some test by which you could determine whether the jurors were color blind?

Dr. STRATTON. I will take your word for that. If that is the process, that would be necessary.

Mr. HEFLIN. And it would be at an expense to the Government to set up a test of that character in every community where oleomargarine was sold, would it not?

Dr. STRATTON. If this method is employed, it would be absolutely necessary for every maker of butter or margarine to have such a standard and be able to use it; for every man who comes in contact with the question in any way. That would be true of weights and measures.

Mr. MAGUIRE. May I ask a question?

The CHAIRMAN. You may; but I hope you will make this the last one now.

Mr. MAGUIRE. In the administration of the pure-food law, and so on, what has been your experience as to how many cases go to the jury and how many are settled in the process of administration?

Dr. STRATTON. I think probably you should have asked that question of a representative of the Agricultural Department, if one is here.

Mr. MAGUIRE. I thought perhaps you knew.

Dr. STRATTON. No, sir.

The CHAIRMAN. We have Mr. Cabell, of the Internal-Revenue Department here. He is informed on this subject, and I have asked Mr. Cabell to ask Dr. Stratton some questions or take the stand himself.

Mr. PLUMLEY. The secretary of the National Dairy Association, Mr. N. P. Hull, wishes to ask the doctor a few questions also.

Dr. STRATTON. I think I ought to be free from the legal side.

The CHAIRMAN. I think so.

Mr. HULL. I just wanted to ask a question that would bring clearly and fairly before the minds of this committee the reasonableness of this proposition. Now, as to the matter brought up by the Congressman across the table in regard to the jury. As I have understood, it is conceded that at least 90 per cent of men would not have any difficulty in determining by their eye that color. Is not that the conclusion? I think the young man answered that question.

Dr. STRATTON. He has given a good deal of attention to color blindness.

Mr. HAWLEY. In measuring the colors.

Mr. HULL. So, for all practical purposes, I might say that dairymen would not object at all to a variation of 2 per cent. All we want is that which is in reason, that the average man as he runs may read and identify the one product from the other, and we believe we are right in that. I consider that with this test that for all practical purposes they could distinguish the one product from the other—the average man. I think you made that assertion?

Dr. STRATTON. Yes, sir.

Mr. HULL. Then the next proposition, if there is a question, then not only can those colors be referred to your laboratory or to a color laboratory and distinguished as closely as all ordinary cases are distinguished—

Dr. STRATTON (interposing). I did not make exactly that latter statement. I said that we could reproduce colors with a certain degree of accuracy.

Mr. HULL. And you explained that it was within 2 per cent?

Dr. STRATTON. Yes.

Mr. HULL. I might just make this statement, that is as close as the dairymen care to have it.

Dr. STRATTON. I believe we could determine a primary standard. We could compare this within 2 per cent, but I do not think any one inspector could compare this with his butter within 2 per cent.

Mr. HULL. Also, if there was a question, submitted to your laboratory, you could tell, could you not?

Dr. STRATTON. Yes, sir.

STATEMENT OF ROYAL E. CABELL, COMMISSIONER OF INTERNAL REVENUE.

Mr. CABELL. I should like to ask one or two questions of Dr. Stratton. Have you decided on a definite scale of measurement of color?

Dr. STRATTON. How do you mean, by standards?

Mr. CABELL. Just ordinary language. You express 70, 55, and 40 per cent. Have you adopted a definite scale of measurement of color?

Dr. STRATTON. Not as such. I suppose you refer to the—

Mr. CABELL (interposing). No; I do not refer to anything. I just asked you, have you a scale of measurements?

Dr. STRATTON. Yes; our scale is the standard colors of the spectrum.

Mr. CABELL. What do you consider 100 per cent?

Dr. STRATTON. Where it is a pure color with no admixture of white.

Mr. CABELL. Is this in the terms of pure color with no admixture of white? Is this scale in the terms of pure color with no admixture of white?

Dr. STRATTON. A scale of colors that takes the fundamental colors and then with each—that is, I mean in this system of measurements. Now, as I said before, there are three systems——

Mr. CABELL (interposing). Which is this? Let us confine ourselves to this particular one.

Dr. STRATTON. This is the percentage of white mixed with the dominant hue.

Mr. CABELL. Do you say your scale of color has no white in it?

Dr. STRATTON. No; I do not.

Mr. CABELL. Now, is this color a simple yellow, the color on your plate? I will ask this question. You have here a per cent of white in yellow tints. Is this a pure white or a pure yellow, an admixture of pure white and pure yellow?

Dr. STRATTON. Yes, sir.

Mr. CABELL. Is there any red in this?

Dr. STRATTON. There may be red, but as I said, in this system we could duplicate that color by that system.

Mr. CABELL. Of course you can; there is no question about that. Any physicist worthy to have the title added to his name could do that.

Dr. STRATTON. It is a very easy problem, is it not?

Mr. CABELL. Yes. Is this a butter color?

Dr. STRATTON. I wish you would come out and do it for us.

Mr. CABELL. Is this a butter color?

Dr. STRATTON. That I could not say, sir. That was not the question put up to us.

Mr. CABELL. What work have you done in reading colors of butter?

Dr. STRATTON. As I have stated heretofore, the gentlemen who conducted those experiments——

Mr. CABELL (interposing). What work have you done?

Dr. STRATTON. Personally I have not made any actual measurements on butter color.

Mr. CABELL. Do you know what percentage of red ordinarily runs in butter?

Dr. STRATTON. No, sir; I do not.

Mr. CABELL. Would an admixture of red in this color result in a different tint with the same amount of white, or result in a different color on the card?

Dr. STRATTON. The color could be measured up by these three methods, whether it has the red or not.

Mr. CABELL. I asked you whether an admixture of red, white, and yellow would make up either a different tint or a different reading in the terms of your card.

Dr. STRATTON. I presume it would; yes, sir.

Mr. CABELL. Of course so. I think we could not possibly have an issue about that. Do you know what variation an admixture of red would make?

Dr. STRATTON. I do not.

Mr. CABELL. If you mixed some green in that, do you know what effect that would have?

Mr. PRIEST. It would change its color.

Mr. CABELL. Do you know what percentage of color is yellow and what red and what is green?

Mr. PRIEST. It is absolutely necessary to make an explanation in that regard.

Mr. CABELL. I asked that question. Do you know?

Mr. PRIEST. I shall have to inquire as to what you mean.

Mr. CABELL. I will ask this question: Have you done enough work in the analysis of color to know whether in the composition of butter there is any green?

Mr. PRIEST. I shall have to ask you to further elaborate the question in order to answer it. If you will answer my question, I will answer yours.

Mr. CABELL. Have you ever, Dr. Stratton, done sufficient analysis of butter to know whether there is any green entering into the composition of the color in ordinary butter or in ordinary oleomargarine?

Dr. STRATTON. I have not, but there is, however; I know it absolutely.

Mr. HAWLEY. I think this is not pertinent to the question. This is a question not as to butter, but as to oleomargarine; not as to the yellow color on the card, but as to oleomargarine. The bill does not provide the color, as I understand it, for butter, but it does provide a limit of the amount of yellow that can be put in oleomargarine.

Mr. CABELL. I will strike out the word "butter." Have you yourself analyzed oleomargarine so as to know whether there is any shade of green in oleomargarine?

Dr. STRATTON. I have not; but I can say, probably offhand, that there is.

Mr. CABELL. Do you know whether there is any red in oleomargarine?

Dr. STRATTON. There probably is.

Mr. PRIEST. There is every color.

Mr. CABELL. And the different shades they will have—

Dr. STRATTON (interposing). Is not white made up of all of the colors? Is there not a percentage of white there?

Mr. CABELL. There is, undoubtedly.

Dr. STRATTON. Then why do you ask that question?

Mr. CABELL. I believe now that I am in a position to make the statement I desired to make. You know, gentlemen, there is no scale of percentages; no scale even of simple colors. Now, the matching of a simple color with a simple color is a very simple thing that any ordinary man can do. The matching of a compound color with an arbitrary single standard is a physical impossibility for anybody within any reasonable limit. The only Government that has ever adopted anything like a color scale has recognized that and has put forward elaborate tests, 30 years ago, first, and then has come on down to the present, verifying them and recognizing at the outset that there must be eight different sets of plates with sixteen separate divisions even to get a primary distinction on one color. Here is the color of butter.

Dr. STRATTON. That is a question I tried to ask you and you would not listen to it. Let me ask you that. Take that one particular Government, how did they establish and how do they maintain that scale of color? Of course it is nothing but a list of shades and tints, but suppose they should be destroyed, how would they reproduce them?

Mr. CABELL. It is as simple to maintain a standard of color for any fixed shades, if you once adopt a shade, as maintenance of weights, but maintenance of simple scales on a compound proposition is just about as practical as an attempt to survey a piece of water by the eye. You may have any number of standard measuring rods and any kind of instruments you wish in the Bureau of Standards, but the thing gets down to the actual human equation, How will the individual take those standards and measures the reasonableness of them by the eye? This I do not say can not be done, but it has not been done; it has not been published; no scale in existence has been published on color, even for the simple colors, leaving aside compound colors, and to attempt to take a standard of a simple color and measure a compound color by it, why, the Department of Agriculture might do it, but I will say that nobody in the Internal-Revenue Department could do it. We have done in the Internal-Revenue Department, I suppose, 15,000 or 20,000 color readings. This gentleman is here, who can give you the expert testimony on that, who has done thousands of color readings of bottles of whisky, and there is not a sample of a bottle in our laboratory that can be measured by this test, although there are 8,000 there now, and there is not a single one to which anybody could apply this card.

Dr. STRATTON. Did we give you the impression that we put that forward as a standard of bottle color?

Mr. CABELL. What is your standard? I do not know. That is all I have seen.

Dr. STRATTON. Do you not think we had better leave that to the butter man? Do you think we assume to set up a standard for butter?

Mr. CABELL. Here are some things you would have to have. Here is a scale divided in the terms about 7 per cent, and I would like for any man here who did not have these tables to separate one single one from the one above it and reach a conclusion on it.

Mr. HAUGEN. I understood that this discussion was to be confined to the subject under consideration. All of this has no reference whatever to the subject we are considering. The bill here provides that the Bureau of Standards shall fix a standard for the color, and that is all there is to it, and here is the standard they have prescribed.

Mr. CABELL. We are simply discussing the standard of color. I will make the statement that no person on earth can apply this pictorial standard, whether this is a standard or not. Of course if it is not any standard, then we are just up in the air, but no person can measure any sample of oleo and say whether it is above or below it in yellow, because oleomargarine is a compound color. The Danish Government attempted to reach this by color and adopted a series of tints, of mixtures of red, yellow, and green, and they submit these as being representative of oleomargarine. Now the inspector has got to test his oleomargarine by every one of these different scales. I have the Danish law here; any of you may read it if you wish.

That number is supposed to be the same amount of color as that, but that one is a mixture of red and yellow and that white, yet to the ordinary eye that looks a number of shades deeper than that. For instance unless you had the table you would deny there was much difference between that one and this, between this No. 7 and that No. 6, yet this bill proposes to make a variation between six and seven a crime, and make the collection of millions of dollars of revenue depend on variations there, a distinction which no human being could make. The maintenance of a standard of color is just as simple as it can be.

Dr. STRATTON. I am very glad to hear that.

Mr. HAUGEN. How would it affect the collection of revenue?

Mr. CABELL. You could not collect it.

Mr. HAUGEN. What revenue is there to be collected?

Mr. CABELL. I do not know if you have any revenue to collect, and if you make a revenue proposition or punishment under internal-revenue laws you depend on a proposition of that kind. I do not care who may happen to be the commissioner or the Secretary of the Treasury, there would not be any effort to enforce it. It would become a bill, then, just simply to put in the hands of administrative officers the power to harry one industry at the expense of another industry.

Mr. TALCOTT. Are we not assuming that the patron of the boarding house might have an inaccurate judgment as to some of these matters, and in case the proscribed materials were brought in here it might be recognized as oleomargarine?

Mr. PLUMLEY. If the problem is not what the higher color shall be, but how much of white shall be in it, does not that simplify the proposition?

Mr. CABELL. No; because yellow and white mixed will give a shade of yellow. Now, you can refer that to the tintoscope and analyze it and probably work it out; then if it is mixed yellow and red, although it might have less red, the color would appear darker. I am giving you the conclusions of the Danish Government, which worked on this for about 30 years, not my own conclusions, now.

Mr. PLUMLEY. Would not they still be lacking the 55 per cent white?

Mr. CABELL. They might when you analyzed them, but to all appearances a 45 per cent white mixture with yellow and red, or mixed with yellow alone, might appear a lighter color than a 55 per cent white. I am taking an arbitrary scale, because I never heard of a scale, but supposing from this card that a 55 per cent alone, the red being deeper than yellow and a more pervasive color.

Mr. PLUMLEY. Then, if it appears to have 55 per cent white it would not condemn anybody, would it?

Mr. CABELL. The inspector can only go by his eye. Here is what I think Dr. Stratton will agree with me in, that a standard of simple color is a comparatively simple matter. If you know the amount of red and the amount of yellow involved, you might mix them and get the compound color. That would be a simple matter. But not knowing the proportions, you would have to prepare all kinds of slides and tests in order to provide for all kinds of possible mixtures.

Mr. PLUMLEY. If, then, the tests being a certain percentage of

white, not the admixture, but simply the question of white of 55 per cent, however obtained, does not that come within the law?

Mr. CABELL. Then, if we had any scale, if any scientist will adopt a scale that we can measure in feet and inches, but white is an absence of all colors.

Dr. STRATTON. White is the absence of all colors, do you say?

Mr. CABELL. White is a mixture of all colors, and in common parlance is the absence of all colors. We say "white whisky" when it has not any color. Physicists may say it is a mixture of all colors.

Dr. STRATTON. White is all colors and black is no color at all.

Mr. CABELL. Physicists answer that, but if you hold up a glass of absolutely colorless water, or look at that paper here on the wall, you say it has no color.

Mr. PLUMLEY. I learned when a boy at school that white is composed of all colors and that black is the absence of all colors.

Dr. STRATTON. If you come to that, to define that color, we could define it to you; we can fix that color by a combination of red, green, and blue.

Mr. CABELL. Certainly you can fix it after you know.

Dr. STRATTON. We can fix it by a mixture of red, green, and blue, and I do not consent for a moment the question of fixing any standard and maintaining it. I think I made it perfectly clear that the Bureau of Standards does not propose to say what color is to be used for oleo and butter. That is a question for you people that are interested to decide. We are not concerned with it; we know nothing about it. But if you decide which color is going to be used, and want to use it in that way, we can maintain it for you.

Mr. CABELL. Then, gentlemen, transfer this bill to the Bureau of Standards.

Mr. PLUMLEY. Send over to them when you need expert qualification.

Mr. CABELL. The expert qualification is needed when an inspector walks into a place where tubs of oleomargarine are offered for sale.

Mr. PLUMLEY. He must use good sense as to how to apply it.

Mr. CABELL. I will ask you if you can distinguish between numbers 4 and 5?

Mr. PLUMLEY. I can distinguish between the problems presented, as between 55 per cent white and anything stronger.

Mr. CABELL. I will ask Dr. Stratton to pick out on this list his nearest comparison with 55 per cent there.

Dr. STRATTON. What is the object of it?

Mr. CABELL. I probably have taken your time, but I want to present the practical questions that will be before the jury.

The CHAIRMAN. We should like you to be as brief as you can.

Mr. CABELL. Yes, I will put six sheets here and will ask Dr. Stratton to pick out the limit of color on these six sheets in his table there, and then I want to just submit that to the committee and that will be all I shall have to say.

Dr. STRATTON. The question should not come up in this way. The question should come up: Do any of these colors fall within these limits?

Mr. CABELL. I will ask you to pick out the ones you say will pass and the one above it which will not pass. That is the practical ques-

tion that will confront every internal-revenue agent in the field in his first and in his every action. Here is an expert, and I ask him to pick out on these sheets—here are the sheets—the official Government sheets furnished me by the Danish ambassador, and I ask him to pick out on these sheets the samples that would pass on his own standard and those above it which would not pass.

Dr. STRATTON. There are quite a number that will pass.

Mr. CABELL. Pick out the last one that will not pass and the first one that will pass.

Dr. STRATTON. Nobody can do it.

Mr. CABELL. Nobody can do it.

Dr. STRATTON. Suppose you can not. What does it prove? That is nothing against the proposition.

Mr. CABELL. It proves you can not make a standard of color to make one either liable to tax or liable to offense.

Mr. HAYES. Is not the particular character of the oleomargarine changed?

Mr. CABELL. It depends entirely on how much red, green, and white it contains.

Mr. HAYES. How could the inspectors determine the measure of white of any particular mixture?

Mr. CABELL. An expert can not do it.

The CHAIRMAN. Have you an expert here whom you will present?

Mr. CABELL. Dr. Adams has probably done as much work upon that as any man in the United States, and if you gentlemen wish to ask him any questions you are at liberty to do so. He is a recognized expert in the United States on colors.

**STATEMENT OF ARTHUR B. ADAMS, OF WASHINGTON, D. C.,
EMPLOYED IN THE INTERNAL-REVENUE DEPARTMENT AS A
CHEMIST.**

Dr. ADAMS. We have been making a practice of testing the color of whisky and oleomargarine and butter for 9 or 10 years, and there is just this point which occurs to me. Take three men in the laboratory—Mr. Doran, Mr. Lindeville, and myself—and we will have a particular sample of whisky, which we will say is "A." Mr. Lindeville will test this and get a color scale of say 10, Mr. Doran will test it and get 9, and I will test it and get 9½. Now, that is invariably the way those tests will come out in the laboratory. Doran, for instance, reading lower than I; Lindeville consistently higher. That will be the way in "A," "B," and "C," or any number of samples; and if we took up that sample a week later, if we each one of us got within 10 per cent of our readings previously, we would be satisfied of the correctness of that reading. We have the Lovibond tintometer, and three men who have been used to doing the work for five years can not read the same and do not read closer than 10 per cent on the scales. Their eyes vary to that extent.

Mr. LEVER. Is that true of tests of oleomargarine?

Dr. ADAMS. That is true of tests of oleomargarine and butter. We have always found it yellow and red with the Lovibond slides, and when Mr. Cabell used my color works it was with the Lovibond tintometer.

Mr. HAWLEY. Do you have any particular difficulty, any particular articles falling below—

Dr. ADAMS (interposing). Mr. Lindeville would say red, 55 per cent; Mr. Doran would say red, 50 per cent; and Adams, 60 per cent.

Mr. LEVER. What causes that difference in the reading?

Dr. ADAMS. Dr. Stratton probably could tell that better, but I would say it was in the eyes.

Dr. STRATTON. I see now you are advocating the Lovibond tintometer?

Dr. ADAMS. No, sir.

Dr. STRATTON. You are going to have just the same difficulties with the Lovibond tintometer as with these others.

Dr. ADAMS. No; I do not advocate it; but, as I understand, it is a strong point that you can standardize the slides.

Dr. STRATTON. Suppose you granted for a moment—suppose you decided, and I do not care how you do it, if you decide the Lovibond tintometer to be the proper instrument, would you advocate putting it in the hands of all these inspectors? And suppose it is practical, which it is not, then how are you going to maintain the tints? You will be surprised at the variation in those things which have been submitted to the Bureau of Standards to test. The glassmaker has got to reproduce one after another from year to year. You get a set of those tint glasses this year and next year they are different from it. Understand it goes back whether you use the Lovibond tintometer or this method or any other, they go back to the same fundamental method in physics.

Dr. ADAMS. I am not advocating anything; I am just showing the difficulty of men who are used to doing comparison color work, obtaining readings which are reasonably accurate and consistent. These three men in the laboratory have been doing these readings for years, yet they never get the same with the Lovibond tintometer.

Dr. STRATTON. Yes, sir. I am not surprised at that.

Dr. ADAMS. This is a set of glasses which have never been broken, so we are not replacing them with new glasses, so they contain the same scheme as to color plates.

Mr. HAWLEY. If a manufacturer has a wide range up to a reasonable point and a reasonable tolerance above that point, could not the manufacturer and the inspector determine with all reasonable accuracy whether he had gone decidedly above that point of color or not, above that tint of color?

Dr. ADAMS. He could tell he had gone decidedly above, or whether he had gone 5 or 10 per cent above.

Mr. HAWLEY. I am supposing the administration of law by a reasonable tolerance, of course. They would not have to pass right up to the limit of the color, they could go all shades from that limit down.

Dr. ADAMS. The difficulty then would come—

Mr. HAWLEY (interposing). The only danger to the manufacturer would be when he tried to pass too closely to the upper line.

Dr. ADAMS. Well, that is. a manufacturer could make his oleomargarine like lard and then never get into trouble. Yes, sir; he could do that.

Mr. HAWLEY. He could make it up to a given tint.

Dr. ADAMS. That would come in the judgment of the inspector. One inspector would read 50 per cent, another 55, and another 60 per cent.

Mr. TAGGART. Permit me to ask what percentage of tolerance would allow accuracy of the inspector? That is, the same accurate judgment between the limits of tolerance?

Dr. ADAMS. I am only speaking from actual experience, and the experience from the whisky testing, and the color testing we have done on oleomargarine is that a man reading one sample to-day and the same sample a month from to-day, he would be lucky if he got within 10 per cent on his same readings of the same sample.

Mr. TAGGART. Is there not a maximum and a minimum between which there would be at least certainty, and the truth would lie?

Dr. ADAMS. No, sir; here is another condition; a man's health makes a great deal of difference with the way he is reading.

Dr. STRATTON. Is this 10 per cent referred to on the test of whisky made on the Lovibond tintometer?

Dr. ADAMS. Yes, sir; if to-day we read a sample as 9, the same man 30 days from now is apt to read it 10.

Mr. HAYES. Stomatic conditions will make a difference, will they not?

Dr. ADAMS. Yes, sir; the Danish law recognizes that.

Mr. HAYES. And a wrong physiological condition of a man would make a change, would it not?

Dr. ADAMS. Most decidedly. If a man is sick he can not read accurately, and we have found that out in the laboratory. On a dark day we can not do any of the color work.

Mr. HAYES. Fatigue of the eye makes a change, does it not?

Dr. ADAMS. Yes, sir.

Mr. HAYES. Are there any other physical or mental conditions which you have observed to make changes in the readings? There are quite a number, are there not?

Dr. ADAMS. I should say so.

Mr. CANDLER. How many sample bottles, and how many samples of oleomargarine have you examined?

Dr. ADAMS. I should say we have handled, roughly speaking, 10,000 bottles and 18,000 samples of butterine, roughly speaking.

Mr. CANDLER. Judging from your experience, could you fix a test of color anywhere that would be accurate, or fix it absolutely?

Dr. ADAMS. I could not say we could, on account of the variation of the inspectors.

Mr. CANDLER. In order to enforce the law and collect the revenue?

Dr. ADAMS. I do not see how it could be brought about.

Mr. HAWLEY. Does the color of whisky determine the amount of revenue?

Dr. ADAMS. No, sir; we test the bottles in bond to see whether that bottle has been refilled or not and it is used as one part of the analysis in reaching the final conclusion.

Mr. HAYES. Smoking may also change the observing power of a man, may it not?

Dr. ADAMS. Yes, sir.

The CHAIRMAN. If there are no further questions, the witness will be excused now.

STATEMENT OF MR. N. P. HULL—Recalled.

Mr. LEVER. I want to repeat what I just said to the committee in executive session so the stenographer may get it, that Mr. Hull desires to have further hearings on this proposition for the purpose of getting into the record the exact proposition of the dairy union with regard to this bill. I made the statement to him on the outside of the committee room a moment ago that the committee would be quite glad to have Mr. Flanders, Mr. McKay, and other officers of the dairy union file with the committee a brief, and that we would make it a part of the record of this committee so that it will become available to the public.

Mr. HULL. I have just this statement to make in regard to that, and I understand I may have five minutes just to explain our position. I want to thoroughly assure you that I wish to be fair and right, and I want to give the oleomargarine interests just as fair an opportunity as I would give the dairy interests, but I am seeking not for myself alone but for thousands, aye, millions, of men who are laboring upon their farms, milking their cows, making butter, and I am here representing them, and I ask this committee, inasmuch as Mr. McCall came here and gave the impression which he has, which has gone all over Congress and all out to the people all over the country, that there could not be a workable color standard fixed; that, inasmuch as that impression has gone out and inasmuch as this question has come up here, we ask for a further hearing that the representatives of those dairy interests through the country be allowed to come here and give you their views in regard to this color standard. We want to come before this committee and have the record here that it may go out to Congress and to the people over the country, because they are the grand jury who have to judge all of us in the long run, and we would like to make these statements to you and to the people and to Congress. Now, you may think I am playing for time, and I wish to disabuse your minds of that.

Mr. HEFLIN. I understand you had an understanding with Mr. Lever that these statements could be filed with the committee?

Mr. HAUGEN. Mr. Lever made that suggestion.

Mr. PLUMLEY. Do you wish a date fixed for a further hearing, or would you be satisfied with filing a brief?

Mr. HULL. We want a date set that we and our representatives can come down here.

Mr. PLUMLEY. Can you fix the time?

Mr. HULL. I can. I want to say to you this first: I happen to be the master of the Michigan State Grange, and our meeting is next week, and I would like this hearing to be fixed for the 17th, a week from Tuesday. We can get here at that time, and we will say to you that we will close then, and we will not ask you for any more of your time, and we will go home saying to our people, and we will say to all interests and all through Congress, that the Committee on Agriculture gave us a square deal and gave us an opportunity to refute these statements.

Mr. HEFLIN. Do you not think we have already given you a fair deal?

Mr. HULL. No; because I think that on your decision rests the welfare not only of a lot of men milking cows, but basically the great

industry of agriculture. You talk about repopulating the farm and putting the men back from the city. You could not put such a proposition as this across on us and ask us to stay on the farm.

Mr. HEFLIN. We purpose to be perfectly fair to the farmer who makes the butter, but you had hearings here in April for the dairy people; afterwards you had hearings in February, and you had hearings here this morning for the dairy people. This was reopened by the dairy people and not by the oleomargarine people. Now, should this bill be held up for a continuation of hearings, for new matter which you might suggest? I do not believe in the color test. I believe the margarine people have the right to manufacture their stuff as they please, just so they stamp it as oleomargarine, just as you testified here that the butter people color as they please.

Mr. HAUGEN. I wish to take issue with the gentleman from Alabama, Mr. Heflin, as to the remark that the hearing was reopened by the dairy people. I think you will all agree it has been reopened by the oleo people. I think the evidence which has gone in here this morning has been largely in the interest of the oleo people, as, for instance, the gentleman, Mr. Hayes, who represents the cotton growers of the South, appeared before the committee to-day.

Mr. HEFLIN. He was just asking a few questions of the witness you brought here. And I want to make this further statement, and that is I think that Mr. Cabell has destroyed your color test.

Mr. HAUGEN. I wish to say I raised the point several times that the whole matter should be confined to the subject under consideration, but, as considerable latitude was given, the first thing we knew we were hearing a bitter oleo discussion.

Mr. TAGGART. Could you not meet every objection in a brief?

Mr. HULL. No; we want to come before this committee.

Mr. TAGGART. Why could you not?

Mr. HULL. We can not do it in that way. You know no man can file a brief and read it and get results.

Mr. HEFLIN. If you put it in the hearings—

Mr. HULL (interposing). Here is a new proposition which has come up; Mr. Cabell has come in here and represented the matter as tending to harm, and it is not going to give the right impression to this committee, neither to the people outside, so I just make that request that you give us that one opportunity on the 17th of this month, and I will go back to the farmers and say you gave us a square deal.

Mr. HEFLIN. Whom do you represent?

Mr. HULL. I happen to be the master of the Michigan State Grange, and secretary of the National Dairy Union.

Mr. HEFLIN. So far as I am concerned I would be willing to hear you this afternoon for two hours yourself and close this matter up. We do not want to push this matter through, but we want to determine this matter. We want to report this bill. There is no use of delaying the hearings for ever and ever. You were here in February, and in April, and this morning, and I think the color test has been utterly destroyed by Mr. Cabell's testimony. I do not believe any jury in the world would convict any man on the scale of tests of colors there.

The CHAIRMAN. This is not germane to this discussion.

Mr. HULL. You asked the question as to my coming before you. If it concerned my own interests, I would gladly do so, but you will understand I represent a very great number of people here who are vitally interested. I do not want to take the responsibility.

Mr. HEFLIN. Mr. Lever has made you the proposition for these gentlemen and you interested to be granted time to file their statements, to be printed in the record and used on the floor of the House and in the debates in order that the House and the committee may know. Is not that fair?

Mr. HULL. I think it has been the privilege of all classes of people to come before the committees to be heard.

Mr. HEFLIN. You have had that privilege three times.

Mr. LEVER. I just wish to say to you that the hearings this morning will be ready for distribution about the day after to-morrow. You could have those hearings and in your brief answer everything. Your brief would make it just as available to the committee as if you had your hearings before the committee. Let me make this other statement, which perhaps you do not know, not having been around here as much as we have. Not 1 per cent of the Members of Congress will ever read one line of this testimony we have heard here. Congress depends very largely upon the very brief briefs that are presented on both sides before the House. Members of Congress are too busy to read all these thousands of pages of testimony, as you very well know.

Mr. HULL. But Mr. Cabell's testimony went all over Congress because of the interest. If we have a meeting, that will bring our people with the same interests which our side has over Members of Congress.

Mr. HEFLIN. These statements you wish filed can be used by your friends.

Mr. HULL. It does not give us the same opportunity Mr. Cabell has to publish his.

Mr. HEFLIN. You have able men here to represent you on the floor of the House.

Mr. HULL. We know it; but we think we can better take care of our interests here. That is all I ask you, and trust you will give us the hearing we request.

Thereupon the committee went into executive session.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, December 17, 1912.

The committee was called to order at 10.30 a. m., Hon. John Lamb (chairman) presiding.

The CHAIRMAN. I would like to remind you gentlemen of the fact that at 12 o'clock to-day we have to vote on an important measure, and I say this for the information of those gentlemen who are before us to-day. And I desire to say further that according to my humble judgment there is but one point of difference in these bills, and that is the question of color. We would like to hear these gentlemen, first, on this question of the color test, and, second, if adopted, how the law will be administered.

Pardon me one further observation, gentlemen. I speak for myself, but I believe I voice the sentiment of this committee when I say that any intimation, coming from any source whatever, that every party litigant here does not receive a square deal before this committee is a misrepresentation, and if any gentleman, no matter who he is, will intimate such to me, that person, outside of this committee, will certainly be held responsible for it. We have given full hearings at all these meetings, and I suppose these gentlemen have made up their minds on this question, but yet the other day, owing to an incident that occurred—it was merely a passing incident—some of the gentlemen claim that they should be heard here again. Now, we are ready to hear you gentlemen who ask for a "square deal."

STATEMENT OF MR. N. P. HULL, SECRETARY OF THE NATIONAL DAIRY UNION.

Mr. HULL. Mr. Chairman and gentlemen of the committee, I am a member of the legislative committee of the National Grange and secretary of the National Dairy Union. In the first place, I want to thank this committee for their generosity in allowing us this extra day for this hearing, and, in the second place, in regard to what Chairman Lamb has said to you, I want to assure you that none of the dairymen are going away saying that you did not give us a square deal after our generosity. While we may not agree with the judgment of some, we are going to extend to you the same right that we ask for ourselves, and we believe that you, no matter what your judgment is, will render us your conscientious judgment and not influenced by anything outside of your knowledge and belief.

Now, in opening this subject this morning I shall be brief, and all our witnesses here assured me they would be brief and not take too much time. Now, I have gone over this question myself with a great many of the dairymen and other people of the country, and I think that the dairy union and the grange can come before you this morning with this statement: First, we object to the Lever bill because it leaves out that section 1 of the Grout law. It is our earnest and conscientious opinion that section 1 of the Grout law should be incorporated in any oleomargarine bill that has the approval of this committee and the approval of Congress, and we shall feel that the dairy and commercial interests of this country have not been justly dealt with unless that provision of the Grout law is incorporated in whatever bill has the approval of this committee and the approval of Congress. From that, up to the time that the package is unwrapped, there, of course, is no material difference between the Haugen bill and the Lever bill.

Now, I believe that every man upon this committee—and I can not help but think that it is true of every Member of Congress—will agree with me that oleomargarine ought to be manufactured and sold for just exactly what it is. I think there is no question about agreeing with me on this proposition. And I think there is no question of your agreeing with me on the further proposition that there is quite a temptation to sell oleomargarine for butter because of the fact that oleomargarine can be manufactured at one-half the cost of butter, and this difference in cost is quite a temptation to the man who is greedy for gain to substitute oleomargarine in the place of butter,

that it may be sold for butter, at butter prices. Now, when that is done there is plain deception and fraud, and there can be no question in any man's mind about that; and it seems to me there could be no question but what this Congress and this committee ought to strive as far as possible to see to it that we have a law that will make it just as difficult to practice fraud and deception as you can do in justice to all parties.

Now, where is the opportunity for fraud and deception along this line in the Lever bill? If a person goes into a grocery store and that grocer desires to get undue gain in the practice of fraud, he can simply unwrap the package and sell it for butter. He will make himself liable; that is true. You can say he can do that under the provisions of the Haugen bill by simply unwrapping and coloring it, but the Haugen bill places just one less temptation in his way to do that thing, so that it protects a little further against fraud than does the Lever bill. The peddler upon the street, as we know, may buy this oleomargarine under the provisions of the Lever bill, unwrap it, and go upon the street and sell it for butter. Of course, as with the grocer, he can do that under the provisions of the Haugen bill if he first colors it to make it look like butter; but the Haugen bill places that one less temptation, or makes it just that much less easy to practice that fraud along that line.

Now, if the provisions of the Haugen bill should prevail and the coloring of the oleomargarine is kept down to where it establishes a line of demarcation, or a method of identification, then we are protected to a much greater extent. Here is a condition where I believe that no one can say that the Lever bill protects the manufacturer of butter and the consumer of butter or oleomargarine one particle. It is well known that there are millions of people who consume butter or butter substitutes at hotels, restaurants, and boarding houses. Now, hotel men, a great many of them, want to get all the gain they can out of their business. We will say that a hotel issues 100 pounds of butter a day. Under the provisions of the Lever bill they can buy a product 70 pounds of which are a cheap fat, costing much less—the first cost—than one-half the cost of the fat of milk. That cheap fat will have been churned in milk to give it the odor and flavor of butter. Under the provisions of the Lever bill it will be colored to look just like butter. Perhaps 10 pounds of butter may have been put in there. That makes 80 pounds of fat and 20 pounds of the overrun. That could be bought at a profit or sold at a profit of from 10 to 15 cents under what butter could be sold for. He may, if he desires to do so, serve his customers that product. That has been made to taste like butter and to look exactly like butter, and there is no provision in the Lever bill that prevents that man doing that. And so we contend that because of that temptation for gain that a very large per cent of the spread for bread that will be served under the provisions of the Lever bill in hotels and boarding houses and restaurants in this country will be this lower-priced product; and when you and I go to that hotel and we order butter, we pay the price of butter, and we do not get the thing which we want and which we pay for, and I believe that every one of you will agree with me that if either you or I elect to consume butter and we pay the price of butter that we have a right to get butter, and that if any law is enacted by

this Congress or any other Congress that does not to the largest measure prevent that sort of fraud being perpetrated upon you or me when we want butter and pay the price of butter, it seems to the dairy and agricultural interests of this country that you are not furnishing them the protection that they deserve as an industry.

Now, in regard to the line of demarcation. There should be a difference in the coloring. Oleomargarine should be forced to have a lower shade of color than butter. One of my good farmer friends, who does not keep any cows on his farm, and he is a member of the Grange, said to me just Friday night—

Mr. STANLEY (interposing). State to the committee whether this product that you say looks like butter is more or less wholesome than butter.

Mr. HULL. I have no knowledge that would permit me to say that it was not wholesome. I understand from the scientists that it is not quite as digestible as butter. We are making no charge against the manufacturer of oleomargarine that he is not making a healthful product, and there is no reason in the world if a man wants to consume it why he shouldn't consume it.

Mr. STANLEY. What he sells looks like butter and smells like butter. Do you think that we as the representatives of 90,000,000 people would be justified in discouraging the manufacture and use of any food product that was in all respects as near like butter as that?

Mr. HULL. I am going to come to that. I have no authority to ask you questions, but I would like to submit this proposition to you. You are a manufacturer of dairy products that cost you under the present price of feed and labor 26 cents at least to produce it. I am a manufacturer of oleomargarine, and because of the fact that I can buy that cheaper fat I can manufacture a pound of oleomargarine for 13 cents. Now, we go to one of these gentlemen here, and we will say your product is just as wholesome as mine, but because it is colored to make it represent or counterfeit my product, you sell your product for 26 cents just the same as you sell mine. Would you consider that to be honest? Do you think it would be honest? This man who has earned his money honestly pays you 26 cents for a product that only costs you half as much, the same that he pays me for a product that costs me 26 cents. That is, you are selling a cheaper product under the guise of butter.

Mr. STANLEY. I wouldn't sell it as butter.

Mr. HULL. But you have defrauded the man when you sell it as butter at the butter price when it only costs you one-half as much as butter. There is no question about the moral phase of that proposition. When a man adulterates a product by putting in a cheaper material, although it may be as wholesome, although there may be as much food value, I say that is defrauding; it is a swindle that you perpetrate upon another man when you sell it at a butter price.

The CHAIRMAN. I want to suggest to you, Mr. Hull, that if you expect your associates to have any share of the time you should not go into a general discussion of this subject, but confine yourself to the two points that I suggested to you, namely, the question of color and how you are going to administer the law if the color test is adopted.

Mr. HAUGEN. He was taken off his subject by a question. My understanding is that these people asked for a day for their hearing,

and that was granted, and I think that after these people are through that the oleomargarine people are to be given an opportunity to be heard. But this day belongs to the dairy people, and it is for them to determine what they have to say and to say it in their own way.

The CHAIRMAN. The gentleman's memory must be very short if he does not know why this hearing was granted to-day; that it was at the dairymen's request, because they claimed new matter was introduced by the Commissioner of Internal Revenue on the 5th instant.

Mr. HAUGEN. Owing to the testimony of the Commissioner of Internal Revenue, I made the point to let these gentlemen come here and answer the questions in regard to color tests and to demonstrate feasibility of executing the law, and it is my impression no limitation of time was fixed by the committee.

The CHAIRMAN. Well, we will refer to the record. The clerk will read the minutes of the meeting referred to.

The clerk read from the minutes of December 5, 1912, as follows:

DECEMBER 5, 1912.

Mr. McLaughlin moved that opportunity be given to the dairy people for hearing on the color tests as provided by section 11 of H. R. 26234, and that the 17th instant be fixed as the date for such hearings.

Mr. Lever moved to amend this motion by providing that the hearings commence at 10.30 a. m. on the 17th instant, that they be concluded on the same day, and that the committee vote on the measure immediately upon the conclusion of the hearings.

Mr. Lever's amendment was agreed to—yeas 9, nays 7.

Mr. HULL. In regard to this question of defrauding because of the fact that the Lever bill does not furnish a method of identification between butter and oleomargarine: When I elect to consume butter I not only elect to pay my money for butter, but I elect to create a market for the manufacture of butter. Now, two men are defrauded; two parties are defrauded when a man calls for butter and he is furnished something else. He is defrauded and also the manufacturer of butter is defrauded. There is no question upon that point, and there is nothing to prevent wholesale frauds along that line if the provisions of the Lever bill become law. Now, why should you refuse to make a color standard? Simply because some people say they want their oleomargarine yellow? There is nothing to prevent a man making his oleomargarine yellow after he bought it. He says that brings on a little extra work. Why shouldn't I have this convenience? And my reply would be because when we furnish you this convenience we are leaving the gate open and defrauding thousands of people; that if the gate is left open so you may have this convenience, it leaves the gate open for the perpetration of fraud. We recognize this in many of our laws. I might ask why I shouldn't have the convenience of carrying a revolver if I have to carry it on the inside? But the law says to protect society and for the benefit of society I must be inconvenienced and carry it on the outside. I have the natural right in the summer time to go without clothes. But we agree it is for the best interests of society that I should be deprived of some of my natural rights. We must, under the provisions of the Haugen bill, deprive that man of certain conveniences, and I maintain that it is necessary to deprive that man of a certain convenience that this great body of people who want to consume butter and who will be defrauded unless they have some method of identification, so that they

may know whether they are getting butter or oleomargarine, have some rights also.

Now, I am going to hasten to go over this color question. You heard what the other gentlemen said. Dr. Stratton says he can measure color within a certain degree of tolerance, just exactly as the chemists can measure by analysis, but that there is always a little margin there. No man can say he has it exact. We do not expect that the man in the color laboratory can tell exactly. But the question came up here what would the jury do? We always take samples of these goods. Dr. Stratton says that he can take tallow and color it so that it will correspond with our inspection, and the inspector can take that under a glass and he may take a sample of oleomargarine that he wants to test and put it under that same glass where he can look at two like materials under exactly the same conditions. Suppose there is a little variation there? Supposing he can not tell exactly. If there is not difference enough that he can not tell exactly, then the difference is not worth while. We are not splitting hairs. All we ask for is a provision in the law that will enable the man who is to spend his money for butter to get butter. If there is not difference enough that the inspector can notice it and it is scarcely apparent to the jury, then it don't make any difference to us. What we want is to eliminate fraud, so that the man who wants to buy our product is enabled to know whether he is getting our product or not.

The question was emphasized the other day about perpetrating an injustice upon the dealer or manufacturer of oleomargarine. I submit to you if you take this matter before a jury that if there is anyone gets the small end of it we get it, because we must convince the jury beyond a question of doubt that man has exceeded the color limit, and you must prove that to the jury by sight. Now, this is a Committee on Agriculture. All over the country we rather expect this committee will look to the interests of agriculture. Suppose you put this bill across, you not only injure the dairymen of this country and discourage them so that they will sell their goods and go out of the dairy business, but other bad results will follow. The dairy business is one of the important branches of agriculture. When you drive those cows out you drive out the mother of the beef steer in this country, too. You are all complaining about the high price of beef, and you say in this country that our American labor ought to be able to get meat once a day. When you strike the dairy, understand, again, you are striking the mother of the beef product, and if you lower the product of the dealer 5 cents a pound compared to other products, it means these men have to sell their cows and engage in some other industry, and when we have sold our cows we have sold off the mother of the beef and you have made it that much more difficult to get beef in this country and you raise the price. When you strike us you also strike the great industry of the packers. The packers are here, I understand, fighting for this oleomargarine law. I am not here to represent the packers, but it is my opinion if they get this law they are going to hurt themselves on the right hand by lowering the beef supply of this country more than they would hurt themselves on the left hand by selling a little more oleomargarine, and when you do that you not only hurt us, but the great consuming public all over the country, and that being

the fact I don't believe as a committee of Congress you can afford to approve this bill and go before Congress and try to put it across on us. That is all I care to say.

Now I would like to ask the privilege for the next witness and each succeeding witness that they be allowed to make their statement. Then if you want to question them, of course you can do so. Many of you know that these boys are not accustomed to speaking before people, and if you break in on them they are apt to lose their trend of thought, and if we are worthy of coming here at all we are worthy of being listened to with respect and to have an opportunity to present our testimony. Then we will be glad to give you our answers to any questions we may be able to answer.

STATEMENT OF MR. I. G. PRIEST, ASSISTANT PHYSICIST, BUREAU OF STANDARDS.

Mr. LEVER. How long have you been connected with the Bureau of Standards?

Mr. PRIEST. Five and one-half years.

Mr. LEVER. What is your position?

Mr. PRIEST. Assistant physicist. Before entering upon a technical discussion of this matter I ask the privilege of stating the position of the Bureau of Standards in this hearing. I am here under orders from the Director of the Bureau of Standards, representing the bureau, and while I represent the bureau I am not here in the interests of the bureau. The Bureau of Standards is not at all interested in this legislation. I am here to lay before this committee certain facts relative to the determination and substituting of color, and we do not care whether you enact this legislation or not.

Now, as I take it, there are two questions before this committee. The first is as to the practicability of drawing a color line at all; that is, can you, assuming that your standards are fixed, go out into the field and pick up samples of oleomargarine and say whether they exceed the color limit or not. The second is as to the possibility of defining and specifying a color in hand without referring to any particular colored sample of material, as is done in this bill. The terms of this bill specify color, and that is what the committee has to consider.

The first of these propositions is the simpler. In fact, I think it is so simple that I can not see any difficulty to any layman, Congressman, dairyman, or any other man understanding that there certainly is a possibility of drawing a color line. Of course, when you come to draw the line sharply you have to work with more care. If you have some very yellow butter and a piece of lard, and you place one in one corner of the room and the other in another corner, you can walk across to the one piece and say that is yellower than the other piece, but if the difference is small you must be more careful, and that is all there is to it. It is no different than any other quantitative specification. There are numerous legal specifications where things are specified by quantitative limit, and chemical analysis are specified in legal terms. The chemist always has the uncertainty in his determination, and if that uncertainty is as great as the difference, of

course the case is not established; neither would it be established here, and it would be the province of the expert to say how great the difference is, to state the ratio of that difference to the ratio of the uncertainty of his determination.

Now, it is possible, if you want to distinguish smaller differences, to take more refined methods. I gave you an illustration of a coarse difference. Suppose the difference is smaller. Then you bring your two samples together so you can see them close together. If you want to go at it with even greater nicety you bring them exactly together. We have optical means of bringing the two colors together so that you can see any line of demarcation between them. If you take a piece of cardboard out into a field you can not compare the color in that piece of cardboard with a piece of butter. It is difficult to compare the color of two things that are as dissimilar as that. You can appreciate you would have considerable difficulty in determining whether a piece of yellow paper matched a piece of yellow cloth. There is a difference in texture, but your judgment is impaired and you are confused by the other elements that are present.

Now, I say, if you want to do this thing with great nicety execute your working standard in the same material, or in a very similar material, to the sample which is to be tested. Suppose you make up a sample of yellow oleomargarine which conforms to the specification in this bill. If it is not advisable to make it in oleomargarine make it in tallow and take that sample and compare it with the suspected sample of oleomargarine. Now, a little advice might assist you in doing that with considerable nicety. Suppose you had two concentric tubes. Suppose that is the end of the glass tube [illustrating]. Suppose that is a glass plate and up against it I have a glass tube represented by my finger there. I have pressed down this standard sample and you look at it through the glass plate found here around the outside of that tube, and I can press in the sample which is to be examined and to have the two in very close contact under very simple optical conditions and only the thickness of that wall of that glass tube separating them.

Mr. PLUMLEY. If a test is to be made by comparing a sample substance, may the sample be made in such a way that it will retain its color always?

Mr. PRIEST. No, sir. That is the difficulty in specifying color.

Mr. HAWLEY. You have explained to the committee the color standard from the laboratory and physical standpoints, but of course the committee is working on the enactment of a law and they must translate and express that in human language. That is not very easy to do. As I understand, in the Haugen bill, they provide that it shall contain not less than 55 per cent of white.

Mr. PRIEST. I was coming to that in my next paragraph. There is an objection that you should not enact this legislation because 10 per cent of the men in the world are color blind. I can not see how that can be considered a very valid objection. A large per cent of the people in the United States are not only color blind, but totally blind, but that don't prevent the Congress of the United States from enacting legislation which it requires eyesight to determine. You can specify that something should be just so long and if you specify with straight nicety a man has to look into a microscope to measure it. We can not employ men at the Bureau of Standards to look into

that microscope, neither can we employ men who are color blind. The matter of color blindness, I think, is exaggerated. Color blindness is of all degrees from small deviation to departures where they don't see the material at all, but these cases are exceedingly scarce.

Mr. STANLEY. May I ask you this: Did the bureau make any investigation to determine whether 55 per cent white—whatever that is—is the color of any character of butter now on the market?

Mr. PRIEST. The bureau did make such investigation, but unfortunately I am not the man who did that work, and that man is not now at the bureau. But I have the record of his work. You understand, I am not individually responsible for these measures. I am not the man who made the analysis. The per cent white in the whole lot of butters ran 27, 30, 31, 32, 35, 36, 40, 41, 42, 43, 45. Those were butters.

Mr. STANLEY. That is, those that ran 45 were the lightest butters.

Mr. PRIEST. Yes.

Mr. STANLEY. There is a certain yellow that is 100 per cent yellow?

Mr. PRIEST. Yes; that yellow you would not get in butter. That is the pure yellow.

Mr. STANLEY. Now, the 55 per cent white does what?

Mr. PRIEST. Dilutes it; makes it paler.

Mr. STANLEY. Fifty-five per cent would be whiter than now found by these people on the market, would it not?

Mr. PRIEST. Yes.

Mr. STANLEY. Then, this law which is proposed here under the guise of making different colors for oleomargarine and butter practically forbids the man making oleomargarine to color it to any degree resembling butter—any kind of butter?

Mr. PRIEST. Yes; if this list of samples of butter which are submitted to the bureau is representative, it does.

Mr. STANLEY. This is not a law enforcing the oleomargarine man to color his product a different yellow from the yellow butter, but practically keeping him from making it yellow at all.

Mr. PRIEST. I can get an approximate idea of that by submitting a card. I also put into my pocket before leaving the laboratory a standard white. Now, of course, things that are almost white it is hard to say which is the whiter. You take things that are almost red and compare one with the other and it is hard to distinguish. It becomes a matter of laboratory definition.

Mr. STANLEY. You were starting to make a comparison of the butter percentages or the oleomargarine percentages.

Mr. PRIEST. Yes; the oleomargarine percentages found were, by this record, 32, 41, 45, 49, 52. That is, the yellowist oleomargarine found had 52 per cent white.

Mr. McLAUGHLIN. What is the percentage of white in oleomargarine when made without any effort to color it?

Mr. PRIEST. I don't know. The name on that sample is "Oma."

Mr. McLAUGHLIN. The reason I ask that is, this 55 per cent here is whiter than the oleomargarine presented to the committee without being colored at all. I don't know whether this committee would compel them to whiten their oleomargarine after they manufactured it or not.

Mr. HAWLEY. Did you make any inquiry to find out whether this law would compel the oleomargarine people to bleach their product?

Mr. PRIEST. I don't know anything about that. All I have here is the record.

Mr. LEVER. Have you had any experience in enforcing a color standard in the field or before juries?

Mr. PRIEST. No, sir; Now, as to the possibility of defining a color in hand without referring it to any particular colored sample, I think that is about all I can say to this committee, and make it intelligible, is that we do regard that as a possibility. I doubt whether it is worth while to try and explain the modes used for doing it, but I might give you an idea in this particular case. The color is specified in oleomargarine by two terms—the color term and the purity term. The color term is what we call hue, and we specify whether it is red, yellow, green, or blue. All this butter is yellow, and we don't take that into account. The other term—"color"—is its purity, its degree of purity, its freedom of admixture with white. Take yellow. Throw a spot of yellow light upon a piece of white paper and you would see a yellow disk. On top of that disk I would throw a white light. As I increased the intensity of that white light the section of yellow would get weaker and weaker, because it is being diluted with white, becoming paler and paler, and that is what this 55 per cent white means, which makes it paler.

Another illustration: By taking a spot of red light there and throwing the light red, it would get paler and paler and you would have a whole succession of delicate pink tints—red diluted with white—and these butter-yellow colors are yellow diluted with white, and the fullness of the yellow sensation is determined by the amount of white in it. The less white in it the more saturated and full is the color. It has been recognized for at least 40 years—I don't know how much longer—that the terms of this specification were scientifically correct and the proper method of specifying color, but very little practical experimental work was done along that line—a little in England—until last year; but four years ago I remember of suggesting the advisability of trying this method of specifying color. About two years Dr. Nutting took up this method of specifying color in terms of hue and per cent white, and designed an instrument for that purpose, and that is the instrument by which these measures on butter were made.

Mr. STANLEY. Can you tell the difference between 52 and 55 per cent white in two objects of like texture?

Mr. PRIEST. Just about. That is about the limit. I have the data of measures of Messrs. Nutting and Jones, who worked together.

Mr. STANLEY. That is, he could detect that difference if he had the two colors side by side with like illumination?

Mr. PRIEST. Yes.

Mr. STANLEY. Without having the standard under the most favorable circumstances, could a man tell by looking at an object that was 50 per cent white and then go across the room to another object that was 55 per cent white and tell the difference?

Mr. PRIEST. I think he would have to be more careful than going across the room to do it.

Mr. STANLEY. One other question. How much scientific training would it take a man to be able to determine mathematically when a color was 55 per cent white?

Mr. PRIEST. Well, it takes a considerable amount of training and theoretical knowledge to specify absolutely that it is 55 per cent white. It does not take any scientific knowledge, any technical knowledge, to determine whether it is yellower or less yellow than the sample which the Bureau of Standards or some competent authority has certified to be the proper standard sample. It simply takes experience and a little knowledge of the proper way of applying the light to determine whether the suspected sample is yellower or not than the standard which was certified.

Mr. STANLEY. Under this law the bureau furnishes a sample to each one of these oleomargarine manufacturers?

Mr. PRIEST. Yes; I think so.

Mr. STANLEY. I want to get at this; does this law provide that the Bureau of Standards shall tell the manufacturer what the proper standard is? Can any member of the committee answer that? The bill does not provide that the man himself shall be able to mathematically determine what is 55 per cent of white.

Mr. HULL. Just to clear up the question, I will ask you, Mr. Priest, would it not be possible for the manufacturers to get a sample from your department?

Mr. PRIEST. I do not know what the bill provides. I should say in that case it is a question for a jurist to determine, and not for me to say.

Mr. STANLEY. I thought you would know whether the bureau was under some obligation to furnish standards to the manufacturers.

Mr. PRIEST. The bureau, if charged with the duty, could arrange such standard samples. Whether the bureau is charged with the duty, I am not competent to say. That is in the province of a jurist to say. The bureau is now providing standard samples for other things. We provide the industries with standard samples, and we would be competent to provide working standards and certify them to represent this standard cited in the bill. We would specify, however, the uncertainties.

Mr. HEFLIN. What office does Mr. Cabell hold?

Mr. PRIEST. I understand he is Commissioner of Internal Revenue.

Mr. HEFLIN. You heard his testimony here the other day?

Mr. PRIEST. I heard his testimony the other day; yes, sir.

Mr. HEFLIN. He differed with you entirely on this proposition of color.

Mr. PRIEST. His testimony was not quite intelligible in its definite nature, and I do not know that he agreed with me, but I believe we could settle our differences if we could come together and thrash it out.

Mr. HEFLIN. He did oppose your position?

Mr. PRIEST. He was evidently vehemently opposed.

STATEMENT OF PROF. WALKER ERB, OF THE UNIVERSITY OF OHIO.

Mr. HULL. I would like to introduce Prof. Walker Erb, of the University of Ohio.

The CHAIRMAN. We will be glad to hear Prof. Erb.

Prof. ERB. Mr. Chairman, I have nothing very much to say about this proposition except to reiterate our view on this problem and to reiterate what Mr. Priest had to say. We have in the law that ther

should not be any shade, hardly to the extent of this particular test. We do not want to be mean about this thing; we want to be fair. We do not want the oleomargarine manufacturers to bleach their material. That is the point. Do not misunderstand that. It is hard to describe just what a yellow color is and what white is. I could not tell you in language, other than by a test, just exactly what a tint of yellow is. We want to allow the manufacturer to color, so to speak, if you agree to put it that way, their oleomargarine up to a certain point. That is the idea. We might all get this point here. We might refer to a sample here and we might get an idea. But the moment it goes out before a court or jury the law will not definitely interpret that shade of yellow. You can not express it in language.

Now, then, we have been working along this line for some time. We have had a great many sessions this summer. We have taken up all the color propositions in the country. We have taken into consideration the Danish proposition, which provides a certain color card, as you see there. We have identically the same thing. But we understand that this color card is duplicated by a man over there, a bright artist. He has charge of that work. Now, the men are a little more permanent over there than they are here. We have not that permanency in our work. We have got to have something just a little more permanent, something that we can verify this bright color with. So, Mr. Whittaker, the former Secretary finally discovered that the Bureau of Standards had an optical method, an optical proposition, which gave us that particular thing that we were looking for. In other words, we can make a card, and if we would lose the card, by a descriptive method, a scientific descriptive method, we can go to the Bureau of Standards and have that duplicated, that particular hue, or particular tint.

This law that we have is the Danish law, fortified by this particular instrumental test. That is the whole story. It is a verification. They have more permanency over there, I say. Where we have the optical method we obtain that permanency. I really do not know what else to say except that I might cite some instances in reference to Mr. Stanley's remarks. Last winter we went to work and collected samples from all over this whole United States—samples of butter—and they were chiefly from experiment stations. I think most of the experiment stations contributed samples of butter, and we got these from various breeds. Each sample was churned, or each particular breed was churned, by itself. Then we got some unsalted butter and some salted butter and we got oleomargarine. I want to say that the colors that you see there—the highest color is just about the color of the lightest shade of butter plus an error that might creep into the test. That is the basis upon which we worked. Is that not right?

Mr. HULL. It is higher than that.

Prof. ERB. Well, just plus a little higher than that.

Mr. HULL. About 5 less color than that plus the error.

Prof. ERB. That is right. If you will look at this color here you will see that it is not necessary for an oleomargarine man to bleach his product providing he gets a good product, a good fat. There is a degree of yellow that is quite marked. You will notice that it is over 70 per cent. Compare this with some of the butterine that is put

upon the market now. Take Mr. Jelke's and it compares very favorably with this 70. A little bit lighter than that.

Mr. JELKE. It is below that yellow.

Prof. ERB. I say it compares favorably with this 70 per cent.

Mr. HULL. That is the lower one?

Prof. ERB. That is the lower one. Understand we do not make this 70 per cent. We give gentlemen the liberty to color from 70 to 55.

Mr. PLUMLEY. Fifty-five white.

Mr. HULL. From 70.

Prof. ERB. We will introduce the color and reduce from 70 down; we allow that from 70 down.

It gives us the liberty to go up 15 points. That is the point.

I think, gentlemen, this is a perfectly square proposition. We are willing to submit this to any fair-minded people. I want to say that we have strained our efforts to put that right down to the very lowest limit—that is, to allow oleomargarine to color as much as we thought was legitimate in order to have the public understand that they are eating oleomargarine instead of butter.

Mr. HULL. Are you able to give us any information in regard to the success of the color standard in Denmark? Has it kept the color down to that standard in Denmark?

Prof. ERB. Of course, you all understand that the Danish law is very severe, and they have kept their color right at that particular point—at that particular shade.

Mr. MAGUIRE. How long has that law been in operation?

Prof. ERB. I do not know. I was over there about four years ago; they had it in operation then. But it was a few years before that. I know it was put into operation and has probably been in operation about seven years.

Mr. MAGUIRE. It is recognized as a fixed law at the present time?

Prof. ERB. Absolutely so.

Mr. LEVER. Have you had any experience in enforcing the color standard before juries?

Prof. ERB. No; because we had no color standard in our work to enforce and consequently we had no experience. We grant that there are possible errors in this, but do you not have in your statutes quantitative chemical analyses? You say that the per cent of solids in milk shall not exceed $8\frac{1}{2}$ per cent; you say that the fat shall not be less than 3 per cent. You have that positively upon your statute books. I will defy any man who will make a test and say this is absolutely so. There are certain margins; certain limitations of error which every chemist takes into consideration. We have here errors in this color scheme.

Mr. LEVER. Have you got those errors in this bill?

Prof. ERB. No; we have not.

Mr. HEFLIN. I understood you to say that the degree of uncertainty about these colors would make proof before a jury limited to that extent.

Prof. ERB. There is a certain degree of inaccuracy in everything, but we are so close that it is practical. That is our point. I would like to answer your question.

Mr. HEFLIN. Do you believe there is a jury in the world that would bring a verdict of guilty against a man if there was any degree of uncertainty about the color?

Prof. ERB. No; but we have these limitations, you understand. We say 55, but you can run up to 70.

Mr. LEVER. You can run down to 70.

Prof. ERB. You can put in white to the extent of 70. I do not care which way you call it, up or down.

Mr. HEFLIN. But the burden is on the Government to show to the jury beyond a reasonable doubt that that is the exact color of the oleomargarine the man has sold. If you do not do that, there is no guilt attached to it.

Prof. ERB. Your laws would then be null, because the standard that you have is not an absolute standard. It is impossible to get an absolute standard. We have this standard so certain that it is practical.

Mr. JELKE. May I ask a question?

The CHAIRMAN. Yes.

Mr. JELKE. If, under the Haugen bill, you had a commodity containing not less than 55 per cent of white and the balance of 45 per cent was made up of 35 per cent primary yellow, 10 per cent of red or primary orange, you would still be within the law. What would you have?

Prof. ERB. That is a proposal that I want the physicists to answer. I presume your point is that it would be 55 per cent white, and the yellow——

Mr. JELKE. I think you are fooling yourself.

Prof. ERB. We are willing to stand the risk. We want to be fair. If we have fooled ourselves, the advantage is on your side.

Mr. JELKE. I am saying this out of frankness.

Prof. ERB. We want to be perfectly fair. We have nothing at stake, and the advantage is entirely on your side.

Mr. JELKE. You can maintain 55 per cent of white and yet have a wide variation, in a popular sense, of yellow.

Mr. HULL. We have a witness upon this matter of the law point, a man who has been before juries, and if you will just question this witness in regard to this color and then wait until we have a man of large experience on the stand, who is qualified to testify on the law points, we would be ever so much obliged to you gentlemen.

Prof. ERB. All I have to say more is that we want to call your attention to the fact that we are not particularly interested in this dairy proposition alone. We are interested for the public generally. All the millions of people whom you gentlemen of the House represent. We want to be square to them, because the moment you put a hardship upon the dairy business, gentlemen, you will lower the crop immediately, and you will increase your food prices. If you take the dairy cow out of the country, the crops will immediately go down. History has made that plain to us. And the moment your crop yields go down, up go your prices on every other commodity. So a man, or the consumer, who is fighting for anything that is wrong here that tends to put the dairy business out of business is simply biting his own nose off, because eventually there will be a reaction, and we are just here in the interests of the public. We are going to be square, as I said. So far as these slight limitations are concerned, we have said it is at a very low point, and we give you a possible rise of 15 points here for that slight error, and I understand

some of the physicists that it is within two points that they can determine the accuracy.

Mr. HEFLIN. We want to break up this Butter Trust, if we can.

Prof. ERB. Yes, sir; break it. We are with you on that proposition.

Mr. HEFLIN. Do you think the enactment of this law will help to break it up?

Prof. ERB. We disagree with you on that proposition. It is a matter of your own judgment. I think that is all I have to say. Thank you, gentlemen.

STATEMENT OF PROF. T. C. ATKESON, REPRESENTING THE WEST VIRGINIA AGRICULTURAL COLLEGE, OF MORGANTOWN, W. VA.

Mr. HULL. I want to introduce to the committee Prof. Atkeson, of the West Virginia Agricultural College, and a member of the legislative committee of the National Grange.

Prof. ATKESON. Mr. Chairman and gentlemen of the committee, it has been my privilege on two or three other occasions to appear before this committee in behalf of some other matters, and I am going to promise you that I will not occupy very much time this morning.

The experts have given their testimony as to this color problem. My relation to the whole matter is that of an impartial witness.

In the first place, I am quite largely interested in agriculture in quite a broad sense; we are engaged in beef production, mutton production, and pork production, and I am a stockholder in the only successful creamery in my State, and my son happens to be manager of that business. I happen to be at this time professor of animal husbandry in our State university, and I have tried to consider this problem fairly, as has just been said by the gentleman who preceded me, from Ohio.

There seems to be one point that is absolutely irreconcilable between the farmers and the dairymen and the general agricultural interests of the country and the manufacturers of oleomargarine. That irreconcilable question is that the butter producers and the farmers of this country, I think, without exception—I have not found one from Washington to the Pacific coast, and I have interviewed many—who did not agree that the man who eats butter ought to know that he is eating butter, and that the man who eats oleomargarine ought to know that he is eating oleomargarine. That phase of the subject has been quite forcefully presented this morning.

I think we are all agreed as honest men that the man who eats oleomargarine ought to know it and the man who eats butter, if he pays for it, ought to know it. There is perhaps a broader view of this whole problem than this question that concerns us, and it is that which interests primarily the producer of butter and the producer of oleomargarine. If that were the only question involved, if we were concerned only about these parties at interest who are immediately at interest, this question would not be worth taking the time of this committee with, nor the time of Congress to determine what should be done about it. It affects the whole agricultural problem. I think Mr. Hull has put the cost of producing a pound of butter too low under present conditions in the country. I do not believe that butter can be produced at a safe cost price at less than 30 cents a pound. I feel certain of that, because I worked at both ends of the problem,

and in our State there have been established within the last 10 or 12 years as many as 20 or 25 creameries, and every single one has failed except one, and I know it is too close to the margin to sell butter at 30 to 35 cents a pound.

That is not theory, it is actual demonstration of the fact; and the butter makers can not put that butter on the market at a profit under present conditions at less than 30 cents a pound. I have not a particle of doubt about that proposition. I am also satisfied that the oleomargarine product, with conditions as they now are, can be put on the market at half that price.

If that were the end of this problem and people wanted to eat colored oleomargarine, and it did not reach any further, then, perhaps, we ought not to devote much time to the subject of colored oleomargarine, and the ultimate result will be that they will have nothing but colored oleomargarine to eat, and they will use cheaper fats of one kind or another, but it will not be even good steer fat. They used to call oleomargarine "steer butter." It will so completely eliminate the live-stock industry of the country that beef will go up and steer fat will go up, and we will have nothing but oleomargarine, and have that at perhaps higher prices than we now have to pay for butter.

The last census shows that with the enormous increase in population in the country there has been an actual large decrease—I shall not attempt to quote figures—in the number of cattle in the United States. There is no question that allowing oleomargarine to be sold in imitation of butter will displace a great deal of butter, discourage the producers of butter, and still further deplete the cattle of the country. This problem is therefore a far-reaching one, and viewing it from a purely impersonal standpoint and with the conditions affected, the live-stock interests of the country—and I have been trying to study the question from every viewpoint—my relation to our institution and to our people makes it incumbent upon me to devote what little talent I have to studying the live-stock interests and development of the country. I do not think any fair-minded man will say that the selling of oleomargarine as butter will tend to still further discourage and deplete the animal husbandry interests of the country. There is not a particle of doubt about that.

If that is true when we have oleomargarine manufactured, other fats than animal fats must be substituted, and it will probably be the product of the cotton seed or some other vegetable fat. Those products are wholesome enough, but unquestionably if we are to substitute oleomargarine for butter we also must substitute vegetable fats for animal fats, because the animal fats will become scarcer and scarcer and more expensive, and the oleomargarine people will find it to their interest to substitute other and cheaper fats for animal fats of any kind.

Then that directly affects and has an influence upon the cost of beef and upon the cost of animal products of every kind that we are just at this time so seriously interested in.

Mr. LEVER. Let me ask you one question.

Prof. ATKESON. Certainly.

Mr. LEVER. Your proposition is that if we permit the sale of oleomargarine in this country, and in very large extent, that the net result will be harmful to the dairy industry of the country.

Prof. ATKESON. Undoubtedly. I do not think any fair-minded man will dispute that.

Mr. LEVER. I hold in my hand here one of the daily consular reports, showing that the production of oleomargarine in Denmark, which is distinctly a dairy country, the production by the 27 oleomargarine factories there was 78,000,000 pounds last year, while importations were 3,000,000 pounds more than exportations, so that the total of consumption in Denmark was 81,350,560 pounds, or 29.32 pounds per capita. The Denmark production and consumption have both been increasing in the last year, and it is true in that connection that the dairy industry of Denmark to-day is in a better condition than ever before in its history. And if so, does that not disprove your theory?

Prof. ATKESON. The oleomargarine sold in Denmark is not sold as imitation butter, but is sold at different prices. That being the fact, many people who could not consume oleomargarine if it were sold at butter prices as butter consume large quantities of oleomargarine. That brings up one other question, and that is that in eliminating the tax on colored oleomargarine, that taxes the poor man's butter. That is what is said. It did not do any such thing; it was making oleomargarine the rich man's butter. If oleomargarine is sold as cheaply as it may be sold for what it is, there will be thousands of people who will have an opportunity to consume oleomargarine as they do in Denmark and other countries who would not under any circumstances consume butter at the cost that is involved in this provision.

But I do not think the condition in Denmark is a parallel case, unless oleomargarine in Denmark is sold as butter. In that case you would have a parallel case. That is one proposition we are combating now.

Mr. LEVER. Are you accurate in your statement made a while ago that there has been a decrease in butter production in the last 10 years as shown by the census.

Prof. ATKESON. I said cattle production.

Mr. LEVER. What about the dairy production?

Prof. ATKESON. The dairy production has not decreased.

Mr. HULL. The assertion he made was that the number of cattle had decreased.

Mr. LEVER. I know; but I want him to differentiate between the beef cattle and the dairy cattle industry.

Prof. ATKESON. I had in mind all the cattle of all kinds. We have to have cows to produce any cattle.

Mr. LEVER. But there has been an increase in butter production in the last 10 years?

Prof. ATKESON. There is no doubt about that. Mr. Hull can give you the exact figures. Oleomargarine has a 10-cent tax. Take that tax off and it will have to be sold in competition with butter and you will see what will happen.

Just one other matter, Mr. Chairman, and I shall not occupy more time. Either one of two things is true, that the live-stock producers and the farmers almost without exception—and they will be approximately one-third of our total population—the farmers of this country without exception, because I do not know where the fellow is in our country and what sort of head he has on his shoulders

if he differed from this proposition, and I believe the sentiment is absolutely unanimous on the part of the farmers in this country, the very man who is trying to feed the people is on our side of this proposition, that oleomargarine shall not be sold in such form, with such color that the man who eats it can not determine whether he is eating oleomargarine.

**STATEMENT OF MR. W. A. H. VARY, OF WATERTOWN, N. Y.,
MASTER OF THE NEW YORK STATE GRANGE.**

Mr. HULL. I want now to introduce Mr. W. A. H. Vary, from Watertown, N. Y., the master of the New York State Grange.

Mr. VARY. Mr. Chairman and members of the committee, I assure you that I appreciate the favor that you have accorded us, to listen to our arguments that we have had regarding this question.

The speakers who have preceded me have covered the ground so thoroughly that it seems unnecessary for me to weary you with extended remarks. As you have been told, I represent a great organization. At the present time its membership in the State of New York is 109,000, and we have others, agricultural and dairy people who are not associated with us, and as I stand before you I represent the great industry of agriculture, and I am asking you gentlemen when you come to vote, to protect the dairy interests of this country and not only that, but protect the consumer of the dairy products as well. I believe you will do that. I believe you are fair men and are willing to do what is just and right as between man and man.

But we do believe that the line of demarcation should be so drawn between honest dairy products made from the dairy cow so that there shall be no mistake whatever as to what you and I and every other consumer may know that when we are at a hotel or in an eating place that we are getting just what we pay for. I think it is conceded by the oleo manufacturers themselves, so far as I know, that the products that they make can be made cheaper than it is possible to make good dairy butter from the dairy cow. There has been a disposition in our State, and as our men from the department will tell you, there has been a great deal of oleo sold for what it was not. That is what we are contending against, and we are asking you to define the line of demarcation, so that there will be no question whatever about it. We have a right to ask you to do that, and I believe that you will concede it. We want it sold for just what it is, and you know that it will not be if it is allowed to be colored with the semblance of butter, and we claim that this should not be done, and I ask you gentlemen to pass a law that will give us the protection that we are entitled to. I thank you.

Mr. SIMMONS. Is there any one of the bills now before this committee that meets with the approval of your organization?

Mr. VARY. Yes; the Haugen bill seems to meet the views of our organization.

**STATEMENT OF MR. W. D. SAUNDERS, DAIRY AND FOOD COM-
MISSIONER OF VIRGINIA.**

Mr. HULL. Now, Mr. Chairman, we will have just a brief statement from Mr. W. D. Saunders, the dairy and food commissioner of

Virginia. He will give some testimony in regard to this matter from his experience.

Mr. SAUNDERS. Mr. Chairman and gentlemen of the committee, I am also secretary of the Virginia State Dairymen's Association. I am here to say that as the State dairy commissioner of Virginia we are greatly interested in the development of the dairy industry in Virginia. And I also appear as the secretary of the Dairymen's State Association of Virginia.

I have been impressed with what has been said in connection with this coloring of oleomargarine. Down in Virginia we would be glad to see something done that would place oleomargarine in a position where it would not be competing with butter that we are trying to make for our people. The difficulty down there seems to be that in spite of the fact that although we have laws and we are trying to enforce them, where it is sold at the hotels and restaurants, it is eaten; that is, to a greater or less extent the colored oleomargarine is eaten as butter. It comes in competition with our butter, and tends to lower the price of butter, and as these gentlemen have said, to raise the price of oleomargarine. I am not here to oppose the making of oleomargarine. I am willing to concede it is a good product, and there can be no objection to its being sold as such. My objection is to it being sold as an imitation of something that it is not. I thank you very much, gentlemen.

Mr. HULL. I want to introduce a part of a letter, and if you want to verify this I have here the letter itself. It is from Mr. Charles F. Scott, formerly chairman of this committee. It says:

I have wondered whether the best solution, after all, would not be to have the department establish a scale of yellows and then prohibit the manufacture of oleomargarine in a color deeper than a certain shade. It would certainly seem as if we ought to be able to figure out some legislation upon which all interests would agree, since the butter people say they have no quarrel with oleomargarine which sells on its merits, and the oleo people say they do not want to countenance fraud.

I am trying to carry out the promise I made to you and not bring people here simply to encumber the records and go over this thing in great detail. We have one more witness, however, and will ask you to hear him.

The question has been brought up as to how this would be handled before a jury, and probably there is no attorney in the United States who has handled more food cases before a jury than has Mr. Flanders, of New York, and I want him given some time to clearly elucidate this matter to the committee; and I think we will not call any further witnesses after Mr. Flanders.

I take pleasure in introducing to the committee Mr. George L. Flanders.

STATEMENT OF MR. GEORGE L. FLANDERS.

Mr. FLANDERS. Mr. Chairman, I do not propose to take a great length of time, as indicated by Mr. Hull. I propose to raise some of the questions that you have raised here about the difficulties before a jury or before a court—the legal questions involved. The first thing I want to touch is the question of accuracy. I understand that all things in this world are relative. No man has ever lived who

could abstract the square root of two or square a circle, although there has been a prize for that from almost the beginning of mathematical work for the man who could square a circle. It is known among chemists that absolute accuracy is not obtainable. That is recognized by all people who are enforcing laws that have standards for a basis.

No chemist that I have ever come in contact with pretends to be accurate. Take my proposition: Nearly every State in this Union has a law relative to a standard for milk. They vary a little, but they provide, first, that adulterated milk shall not be sold, and, second, that if the milk falls below a certain standard it shall be deemed adulterated.

Now, the agents who collect those samples of milk are not qualified in any sense whatever to tell whether that milk is below the standard. They have a certain knowledge by which they give a guess as to whether they ought to take it, and if they think they should take it then they do take the sample to the chemist. In my judgment the chemist takes the place of the expert on color here in this case. An agent in the field will not go outside that limit. He will simply determine whether he ought to take it and submit it to the expert. He takes the sample of milk and delivers it to the chemist and the chemist analyzes the sample. If the standard requires 12 per cent of solids and we find that there is only 11.95 or 11.97, we do not bring an action, because it is so close that it falls within what chemists themselves term the area of doubt, and analyses and good judgment dictate that he shall not bring an action, and then the man who could be accused has the benefit of that doubt, as is the principle of the law in other cases. So that if our agents are taking these goods to submit the question of color, if we can not determine that there has been a violation so that we can prove it, as Mr. Heflin said, beyond a reasonable doubt—that would apply in a criminal case; of course, in a civil action we must have a preponderance of evidence.

We will stand on that proposition here on exactly this ground. We have put forth the best efforts we could get hold of to try to find some standard to define the line of demarcation, and I want to say here that I understand this committee to be as one on this proposition: You all seem to be willing that a law shall pass that will prevent the fraud in connection with the tax. It is only a difference of opinion as to the means necessary or the best means necessary to the end. That being the case, I will say to you that we have done the best we could to find the means to that end. We believe we have found one that is not necessarily accurate, but approximate to this extent, that it is practically a standard and will serve the purpose. Now, if it does not, gentlemen, we who are proponents of this measure will be the ones who will suffer, not the oleomargarine people. Those we represent will be the ones who will suffer, not the manufacturers of oleomargarine. Whom do we represent? I am here to say emphatically I represent the entire consuming public of this country, which includes the oleomargarine manufacturers themselves. We want it fixed so that the man who buys may know and may not be deceived, and if he wants the oleomargarine he shall not be deceived in buying butter. There will be protection on both sides of the question. We believe that this bill will do that thing. If it injures anybody, it will not injure the manufacturers of oleomargarine, but it will injure the

proponents of this measure. It comes as near doing what we want done as we can find the means of doing, and failure, if there is any, will be our failure and not theirs. I think that concludes my remarks as a positive statement.

The CHAIRMAN. Does that finish your hearing?

Mr. HULL. Mr. Giles S. Homer, of the New York State Grange, is here. He came with the expectation of appearing as a witness before this committee, but he says that, inasmuch as the committee is hurried, he would simply like to have note made of his appearance and will not take the time to testify in regard to this same question.

Mr. TALCOTT. Would he like to submit a statement in writing?

Mr. HULL. No; just simply to have his presence recorded.

The CHAIRMAN. That, I believe, concludes the hearing.

Mr. HULL. I thank you very much, Mr. Chairman.

STATEMENT OF WILLIAM HITZ, ESQ., OF WASHINGTON, D. C., REPRESENTING THE PURE FOOD PACKAGE CO., OF BOSTON, MASS.

Mr. HITZ. Mr. Chairman, I represent the Pure Food Package Co., of Boston, Mass., which makes the containers in which both oleo-margarine and butter are extensively sold. In the fourth section of this bill—

Mr. HAUGEN. Which bill?

Mr. HITZ. H. R. 20281.

Mr. HAUGEN. That is the Lever bill, is it?

Mr. HITZ. Yes, sir. The fourth section contains this provision:

That all margarin shall be put up by manufacturers in their manufactories in separate prints or bricks of one-quarter, one-half, one, two, three, and five pounds, and in no larger or smaller subdivisions in cartons, metal, or fiber containers.

Now, this phrase "prints or bricks" is a well-known expression in the trade, referring only to square packages. My client is an extensive manufacturer of circular packages, and there are also octagonal packages used in this trade. This language in the bill prevents the use of any but a square package, and the machinery for making such package is controlled by patent which can not be used except by payment of royalty to the owners of the patents and therefore necessarily increasing the cost of this product, and the suggestion that we want to make is that in place of the expression "prints or bricks" the bill shall be amended by striking out those words and inserting the word "units," so that the manufacturers shall put up their products in separate units of the sizes which allow the use of the circular or octagonal package.

Mr. LEVER. What page of the bill is that?

Mr. HITZ. Page 5, lines 17 and 18. That expression occurs there and in one or two other places.

Thereupon, at 12.15 o'clock p. m., the committee adjourned.

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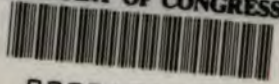
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